

THE STATE OF PENNSYLVANIA

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THE STATE OF PENNSYLVANIA

I. EARLY HISTORY

1. HOW PENNSYLVANIA CAME INTO EXISTENCE

Pennsylvania is famous the world over as the scene of two important events: the signing of the Declaration of Independence, which took place in Independence Hall, Philadelphia, in 1776, and the making of the Constitution of the United States in the same hall in 1787. But another important event in Pennsylvania's history had occurred in London a hundred years earlier. This was the drawing up of a constitution or charter, called "Concessions," for a new colony in America, by an aristocratic young Englishman. This young man was William Penn, a friend of the king, a traveler throughout Europe, a lecturer and a writer, but, most important of all, a lover of freedom and a friend of the common people. As a young man he joined the Quakers, a group of people who suffered for their religion and were not then in favor with the government. When Penn was about thirty years old he and some other Quakers bought land in New Jersey and became interested in America as a place to found a colony. They thought that this new land would be a good place in which to live and practice their religion.

About this time Penn's father died and left his son a large amount of money. Charles II of England owed Penn's father about \$80,000, and to cancel this debt the king gave William Penn a tract of land west of the Delaware River, and later Penn purchased what is now the state of Delaware. It was for this land in the New World that Penn drew up a con-

stitution before he left England. When the constitution was published in England, copies of it and information about the proposed colony were sent to many parts of England and Europe. The result was that before Penn himself was able to leave England about three thousand persons had come to his American colony. The king called the land which he had given Penn "Pennsylvania," which means Penn's woods.

All that is best in the government of the United States today is to be found in the plans of this young Quaker for his colony of Pennsylvania. Among the first laws passed were several to encourage the people to practice the kind of thrift that Benjamin Franklin, many years later, made famous. The people were advised to have only two suits of clothes, one for summer and one for winter, and in other ways to live frugally. From the first Pennsylvania was a state in which the people had equal rights and made thrift their ideal, — two things which have made the United States a powerful nation.

Although the first settlement in the state was made by Swedes at Upland, now Chester, many years before Penn thought of coming to America, yet it was not until Penn had put into operation his constitution that people from the Old World began to flock to this section. Not long after Penn arrived, a group of thirty-three Germans landed in Philadelphia, and from that time until about 1882 many Germans came each year to the state. They founded a city of their own at Germantown. From 1682 to about 1755, Irish Quakers also came to the colony in large

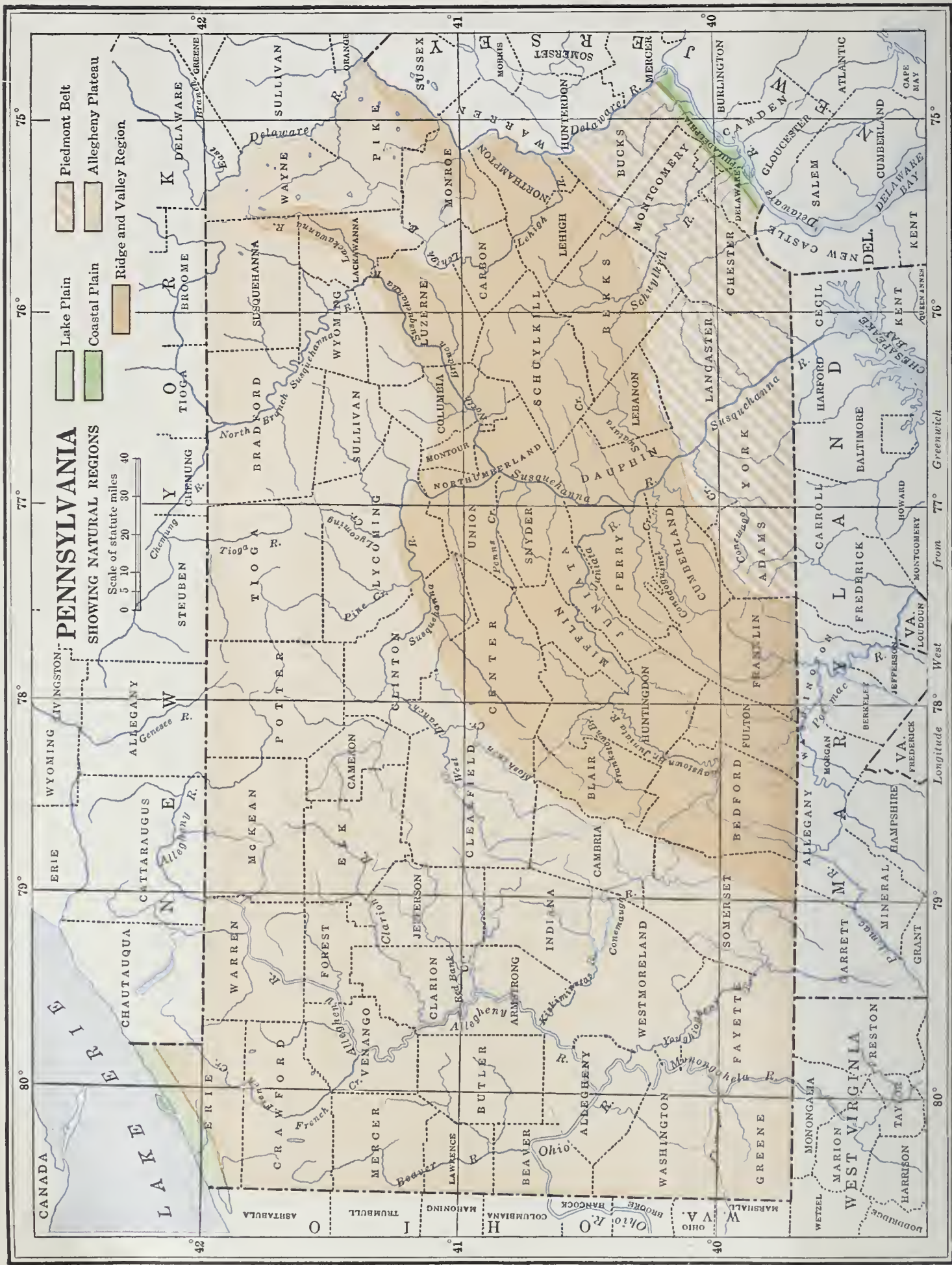




Figure 1. The Pennsylvania monument on the battlefield at Gettysburg. This monument was erected by the state in memory of the Pennsylvania men who lost their lives in the Civil War.

numbers. During the French Revolution groups of French nobles who were driven from their country came to Pennsylvania. One of these groups formed a settlement known as Azilum (present Asylum near Towanda). One of the most interesting groups of immigrants that ever entered the state was the one made up of four hundred and fifty-four Acadians who, in 1755, were driven from their farms in Nova Scotia by the British and brought to Philadelphia. They were a small part of the many thousands of these people who were scattered up and down the Atlantic coast. At this time people from so many different countries were found in the colony that Englishmen spoke of Pennsylvania as "threatened with the danger of being wholly foreign in language, manners, and perhaps even inclinations."

Because so many Europeans were eager to come to Penn's colony, the other colonies were jealous of its growth. Even when the governor of New York in 1736 advertised in Germany that "five hundred acres of land would be given to each of the first two hundred families who should come to New York

from Europe," the immigrants bent on going to Penn's land were not turned aside,—there were too many things to attract the people to the colony. The fact that every person was as free as every other to hold land in Pennsylvania, and the fact that they could be free from religious troubles made Europeans eager to make their homes there. It is no wonder, then, that in later years Pennsylvania became the most democratic of all states.

Pennsylvania was always a progressive colony, and later a progressive state. At every time of crisis it has had men and resources sufficient for its needs. Although for many years it was freer than most states from Indian troubles, yet it was the scene of many struggles between whites and Indians, the warfare in the Wyoming Valley being one of the most terrible. When trouble began to brew between England and the colonies, Pennsylvania sent one of its ablest citizens to England to act in its behalf,—Benjamin Franklin, who resisted the Stamp Act vigorously. When the Revolutionary War came, Franklin was sent to Paris to keep France our friend and to secure much-needed loans. Pennsylvania was not only a part of the great battle ground, but it was the center of important conferences and the home of men like Robert Morris, who secured funds to keep the armies in the field. After the Revolutionary War the state grew rapidly; iron and coal were mined; canals and railroads were built. Although slavery was permitted in the colony, the first printed protest against slavery in America was made in Philadelphia in 1693. At an early date laws were made for the gradual abolition of slavery in the state,—a fact which Washington thought might explain why in 1796 land was worth more in Pennsylvania than in Virginia. During the Civil War the best energy of the state went into the struggle to preserve the Union, sev-

eral important battles being fought on its soil. See Figure 1.

Since the Civil War the chief events have been the rapid growth of the steel, oil, and coal industries and the manufacturing which they have made possible. It was partly because of Pennsylvania that in the World War the United States and her allies were victorious, for without the state's coal and steel they would not so easily have manufactured a sufficient supply of munitions. The development of the state's great industries has in itself been a great event. To take iron ore and create a battleship, to take sand and make a delicate glass vase, to crush limestone and make crops grow, as Pennsylvania has done, means that men have spent years of toil in planning how to get things out of the earth and how to combine them after they are out of the earth. This kind of work is battling with nature. Nature is conquered only when she has been made to serve men. The state has been first in so many things that its people have reason to feel proud. The first library, the first club, the first stock exchange, the first seat of the national government,— are all to the credit of Pennsylvania. See Figure 2.

2. HOW PENNSYLVANIA'S BOUNDARIES WERE SETTLED

Of the forty-eight states Pennsylvania is thirty-second in size. It is approximately 150 miles from north to south and 280 miles from east to west. The English king who gave this land to William Penn named boundaries that conflicted on almost every side with those of other colonies. The result was that for a long period of time Pennsylvania was engaged in boundary disputes. The first of these was with Lord Baltimore about the southern boundary. This lasted more than eighty years, and not until 1850 was the present southern line of the state finally settled upon. There were



Photograph by Ewing Galloway, N. Y.

Figure 2. Independence Hall in Philadelphia. In this building the Continental Congress met during the Revolutionary War, and here, too, the Declaration of Independence was adopted.

many disputes with Indians about cessions of land. One of the bitterest quarrels, however, was that with the white settlers of the Connecticut colony, which claimed much of what is now the rich anthracite region of Pennsylvania. There was also trouble with Virginia about the territory just west of the Allegheny Mountains. At one time the area was claimed by Pennsylvania as Bedford and Westmoreland counties and by Virginia as Augusta County. So intense was the rivalry for this area that each state carried off some of the other's settlers to hold as "hostages" until the dispute should be settled. Pennsylvania was finally successful, Virginia (which then included present West Virginia) retaining only the panhandle section of the disputed area. Originally the state had only four miles



Pennsylvania Department of Highways

Figure 3. Part of the Allegheny Plateau in Lycoming County. Find this county on the map on page 2. Centuries ago this plateau was a high plain with a nearly

level surface. Notice how the rivers have changed it into a region of hills and valleys. What different uses are being made of the land which you see in the picture?

of lake front, but in 1792 when 200,000 acres of land were purchased from the United States, the frontage on Lake Erie was increased to 45 miles.

Something to explain. Tell in your own words what these two statements mean: (1) Pennsylvania is a progressive state. (2) Nature is conquered only when she has been made to serve men.

Sentences to complete. 1. William Penn received some of his land from the king of England and the rest from _____. 2. Pennsylvania had _____ natural (boundary, boundaries). This (These) is (are) _____.

Special credit work. Tell several ways in which Benjamin Franklin served his country.

II. PENNSYLVANIA'S NATURAL REGIONS

There are many ways of speaking of the different parts of Pennsylvania, but it has been found especially convenient to speak of the state as consisting of certain surface regions which nature has made prominent. These are the Atlantic Coastal Plain, the Piedmont Belt, the Appalachian Highlands, the Allegheny Plateau, and the Lake Plain. We shall best understand these natural regions of Pennsylvania if we study the map on page 2 and work out the following map studies.

MAP STUDIES

I. The Atlantic Coastal Plain. 1. What river does the Coastal Plain of Pennsylvania border? 2. What is the approximate length of the Coastal Plain in our state? 3. Turn to a map of the United States showing the natural regions and note what other states share the Coastal Plain with Pennsylvania. 4. Does any other state have a smaller share of it than Pennsylvania? 5. This region is level and its soils are deep. Should you think it would be well suited to agriculture? 6. The city of Philadelphia lies partly

in the Coastal Plain region. Into what other region does Philadelphia extend?

II. The Piedmont Belt. 1. Locate this region on the map. 2. What is its approximate width in Pennsylvania? 3. The Piedmont is rolling country, well adapted to agriculture. Into what bordering states does it extend? 4. What are the two chief rivers that cross this region in Pennsylvania? 5. The eastern edge of the Piedmont was once the shore line; today it drops off abruptly to the lower Coastal Plain. The eastward-flowing rivers have falls and rapids in their courses at the points where they cross the boundary between the two regions; hence this boundary is known as the *fall line*. The falls and rapids along the fall line have determined the location of many important cities from New Jersey to Alabama. What great metropolis in our own state is a fall-line city?

III. The Appalachian Highlands (Ridge and Valley Region). 1. This is really a series of parallel ranges running from northeast to southwest through the state. Between the ranges are long, narrow valleys the floors of which are covered by deep, fertile soils. Many of the mountain ridges are forest-covered. What occupations might be carried on in the mountains? in the valleys? 2. Study the rivers of this region. What rivers cut their courses *across* the parallel ranges? 3. What streams flow in directions parallel to the ridges? These streams show where the valleys are located; between them are the higher ridges. 4. The curving tongue of the highlands which represents their northeastmost extension is known as the Reading prong. What great mineral resource is found in the prong? 5. In Virginia, West Virginia, and Maryland the Appalachian Highlands are bordered on the eastern side by the steep Blue Ridge. What mountain ridge in southern Pennsylvania is an extension of the Blue Ridge? The western ranges of the highlands are known



Figure 4. Picking grapes in a vineyard on the Lake Plain. How does the surface of the Lake Plain compare with that of the Allegheny Plateau? Why is the Lake Plain so level?

as the Allegheny Mountains. On the western side they descend abruptly to the Allegheny Plateau forming the "Allegheny Front."

IV. The Allegheny Plateau. 1. Approximately how much of Pennsylvania does this region occupy? 2. The surface of the plateau is not so generally rugged as the highlands, except in a few places where the rivers have carved deep valleys in it. What neighboring states share the plateau with Pennsylvania? 3. In this region is found a combination of natural resources that mean great wealth to Pennsylvania, chief among which are good soils, extensive forests, rich beds of soft coal, large quantities of petroleum, and navigable rivers. What different occupations should you expect the people to be engaged in? 4. What rivers in this region are navigable? 5. What great industrial city is located in this region? 6. What great natural resources have aided in its development? See Figure 3.

V. The Lake Plain. 1. How does this region compare in size with the Coastal Plain? 2. Its surface features are similar to those of the Coastal Plain. What should you expect the occupations of the people to be? 3. Pennsylvania's one lake port is situated in this region. Should you expect this port to be as important as Philadelphia? See Figure 4.

III. PENNSYLVANIA'S NATURAL WEALTH

Pennsylvania has some of all the important kinds of natural wealth out of which men can make opportunities for work :

1. Large areas of fertile soil.
2. A plentiful supply of underground water.



Photograph from Ewing Galloway, N. Y.

Figure 5. A corn picker and husker at work on a farm in Lebanon County. Find this county on the map on page 2. A large part of Lebanon County lies in what is known as the Great Valley, a rich farming region. This valley is made up of several river valleys separated by mountain ridges. It is one of the largest lowland areas in the Ridge and Valley Region.

3. A favorable climate, including abundant rainfall and a sufficiently long growing season.
4. Several great rivers and many small streams.
5. Many acres of forests.
6. Many square miles of mountains.
7. Large supplies of coal, iron ore, petroleum, clay, and other minerals.
8. One ocean port, one lake port, and a river port.

1. PENNSYLVANIA'S WEALTH OF SOIL

No one of these eight forms of natural wealth can alone make a state or a nation great. Pennsylvania's good fortune is in hav-

ing so many kinds of natural wealth. First of all, it has *fertile soil*. Pennsylvania ranks fourteenth among the states in the percentage of improved land in farms. It now has about 16,000,000 acres of such land, but only about 8,000,000 acres are actually farmed. The soil of the state is more valuable than that of the average Atlantic state, owing partly to the fact that large areas contain limestone, which is necessary to fertile soil. There are also large beds of limestone rocks from which fertilizer is ground for use in the areas which have but little lime.

The most valuable food products of Pennsylvania soil are the cereals — wheat, corn, and oats. The farmers of Pennsylvania grow more corn and oats than they do wheat, but it is usually the wheat which they export. See Figure 5.

Besides cereals the soil of the state produces large quantities of tobacco, vegetables, and fruits, especially potatoes, grapes, and

apples in the region near Lake Erie, and apples and peaches in the southeastern section. Large quantities of berries grow on some of the land in the hilly sections from which the trees have been cut.

Although many different kinds of grains, fruits, and vegetables have been successfully grown in the state in past years, fewer acres are cultivated today than were cultivated ten years ago. This means that Pennsylvania has less food to sell to other states and to Europe and less for its own use. This in turn means that with its coal, iron, and manufactured goods it must buy from other states more food than was formerly necessary. Al-



Courtesy of Pennsylvania Department of Agriculture

Figure 6. A herd of dairy cattle in Chester County. The map on page 2 shows you that this county is in the Piedmont Belt. Notice how hilly the surface is.

ready it buys from other states more than half of the food that it uses. The more food the people have to buy outside the state the higher the cost of living is likely to be, for usually the expense of transporting food long distances makes it more expensive than when raised near home. In the early days Pennsylvania's soil was very rich and the crop yield large. Have the people in three hundred years used up so much of this fertility that year after year farms must be abandoned because crops cannot be grown on them successfully? The answer to this question is both Yes and No. In Pennsylvania, as in every other state, farmers in past years have grown whatever crops would thrive best at the time, regardless of the fact that if the same crop is grown year after year on the same area much of the plant food is taken from the soil. The result is that today many acres of farm land raise poor crops unless the soil is carefully treated and crops wisely planned. This means in some cases spending more money for fertilizers and modern tools than many farmers are willing to spend.

The soil of the state not only furnishes food for human beings but food for live stock,

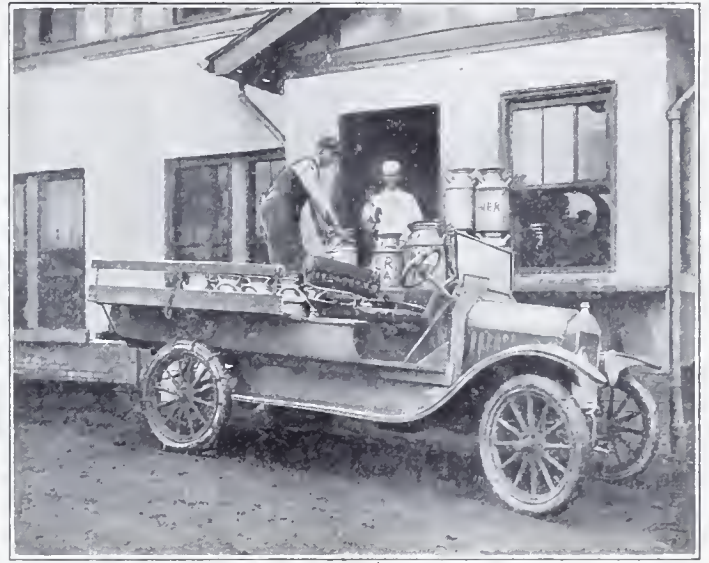


Figure 7. Delivering cans of milk at a creamery in Mercer County. In what natural region is this county? To what large city might dairy farmers send their milk?

and these in turn supply meat, milk, butter, cheese, and eggs for human beings. Much of the soil is well suited to the growing of hay and forage crops, that is, crops which can be used as food for farm animals. Thus, in addition to cereals, vegetables, and fruits, Pennsylvania's farms can also produce cattle, swine, sheep, and poultry. The principal dairy regions of the state are near the cities of Philadelphia and Pittsburgh and in the counties of Erie and Bradford. In these regions there is not only good pasture but a ready market for every dairy product. The cities require an always increasing amount of fresh vegetables, milk, cream, and eggs. The farmers who know how to get the most out of every acre of their land are of great service to the state. By building larger silos without increasing the acreage given over to forage crops, farmers have been able to raise more cattle and hogs. In a recent year more than a thousand new silos were erected in the state. *See Figures 6 and 7.*

The state helps the farmers through the department of agriculture at Harrisburg and the agricultural experiment station at State College, Center County. Under the direction

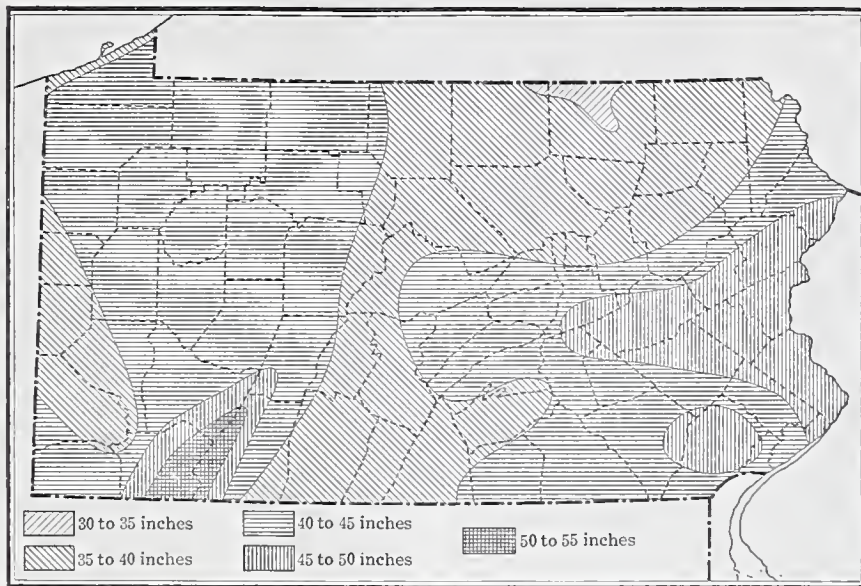


Figure 8. A map showing the average yearly rainfall in Pennsylvania. Compare this map with the regional map on page 2. About how much rainfall does the Piedmont Belt receive each year? the Allegheny Plateau? the Lake Plain? the Ridge and Valley Region? What is the annual rainfall in your county?

United States, including Pennsylvania, this supply of underground water has in many places been lowered from 10 to 40 feet by the cutting of forests and by tilling the soil so as to allow large quantities of rain water to run off into brooks and rivers instead of seeping into the soil where it falls. The smaller the amount of underground water, the farther from the surface it is. In the arid sections of the West the underground water, or water table, as it is often called, is so far from the surface that plants cannot reach it with their roots; therefore, before the farmers can grow any crops, water from distant rivers has to be turned aside to run through the fields in narrow irrigation ditches. This is expensive and ought never to be necessary for Pennsylvania, because usually the rainfall is plentiful in all parts of the state for the growth of most farm crops. See Figure 8.

of this college sixty-five trained county agents give all their time to helping farmers in the agricultural counties select seed, test soil, and fight insects and other pests.

2. PENNSYLVANIA'S WEALTH OF UNDERGROUND WATER

Closely related to the soil is another form of the state's natural wealth, — *the supply of water hidden within the earth*. One of the things necessary to grow crops is a sufficient supply of water in the soil to absorb and carry to the plants the mineral substances necessary to growth. Besides the lakes, ponds, and streams, there is much water under the ground. All well-water comes from this underground supply. This supply of underground water would probably make a layer 1000 feet deep if it were spread over the surface of the land. It is made up of water which makes its way down into the soil from streams, lakes, and ponds, and from that which falls as rain, snow, or hail and seeps through the surface soil into the cracks and pockets below.

It has been estimated that in the eastern

United States, including Pennsylvania, this supply of underground water has in many places been lowered from 10 to 40 feet by the cutting of forests and by tilling the soil so as to allow large quantities of rain water to run off into brooks and rivers instead of seeping into the soil where it falls. The smaller the amount of underground water, the farther from the surface it is. In the arid sections of the West the underground water, or water table, as it is often called, is so far from the surface that plants cannot reach it with their roots; therefore, before the farmers can grow any crops, water from distant rivers has to be turned aside to run through the fields in narrow irrigation ditches. This is expensive and ought never to be necessary for Pennsylvania, because usually the rainfall is plentiful in all parts of the state for the growth of most farm crops. See Figure 8.

To test your understanding of the text. To make sure that you understand the sections you have just read, complete correctly the following sentences. Sometimes one word and sometimes several are necessary.

1. Only one kind of soil can be wealth to a state. This is _____ soil.
2. Good soil can be wealth to a state only when it is _____.
3. Poor soil is soil that is _____.
4. Farmers can often change good soil into poor soil by _____.
5. Water is necessary to make _____ wealth to a state.
6. Underground water fails to make things grow when _____.
7. Improved land is land which has been _____.
8. On some of the state's cut-over land, or land from which the trees have been removed, _____ are grown.

3. CLIMATE A PART OF PENNSYLVANIA'S WEALTH

Since it is the *rainfall* which provides the water that forms the underground supply, any region in which there is little rainfall lacks one source of wealth. As we have already learned, there can be no rainfall unless the air contains much moisture. If the winds which make their way across the state have traveled over the sea or over lakes, they are filled with moisture, which, if cooled sufficiently, will fall to the earth as rain or hail or snow. The higher air is cooler than the lower; thus one of the ways that moisture-laden winds are cooled is by being forced to a higher altitude by mountains. Most of Pennsylvania is of a higher elevation than the areas from which the winds come; therefore, whether it is the southwest winds, which have come from the Gulf of Mexico, or the southeast winds, which come from the Atlantic Ocean, or the northwest winds, which pass over the Great Lakes and the St. Lawrence River, they consist of moist currents of air which are cooled as they are forced to rise by the highlands of the state. The result is that the state has an abundant rainfall, which is untold wealth to its people. This rainfall varies from an average of about 40 inches along the Ohio in the extreme west to an average of about 50 inches along the Delaware in the extreme east. In such areas abundant crops can be raised. When one remembers that in eastern Montana the annual rainfall is less than 15 inches, and in eastern Colorado less than 18 inches, Pennsylvania seems fortunate indeed.

Even with an abundant rainfall the soil would not be valuable for agricultural purposes unless there were a long growing season. The growing season in any state extends from the last killing frosts of spring to the first killing frosts of autumn. In Pennsylvania this season varies from about April 10 to May 10

in the spring and from October 10 to October 30 in the fall. The longest growing season is in the vicinity of Philadelphia and York. In every part of the state the average summer season is such that certain fall-sown plants (like wheat, rye, the hay grasses, and red clover) and certain spring-sown cereals (like oats, spring wheat, and barley) can both be grown successfully.

Satisfactory crops of grains and vegetables, however, require something besides fertile soil, rainfall, and a long growing season: this is *the right temperature*. There must be enough heat, but not too much, during the season between killing frosts, to ripen the crops. The average summer temperatures in the state vary from 66° in the northern part to 73° in the southern part. Pennsylvania is therefore fortunate not only in its soil, rainfall, and length of growing season but in its temperature also.

Choosing right terms. Which of the following phrases correctly describe climatic conditions in Pennsylvania?

scant rainfall	abundant rainfall
excessive heat	short growing season
cold summers	long growing season
mild winters	

4. PART OF THE STATE'S WEALTH CONSISTS OF ITS RIVERS AND SMALL STREAMS

An important part of the state's wealth consists of water that lies on the surface, — *streams and ponds and lakes*. Streams are wealth for five reasons: (1) they help to supply moisture for the surrounding soil; (2) they help to supply water for homes; (3) some of them furnish water power for factories and electric generating plants; (4) some of them can be used to transport goods; (5) they help to make the kind of scenery that attracts nature lovers and vacation seekers. All the streams of Pennsylvania serve one or more



Photograph by Ewing Galloway

Figure 9. A view of the Delaware River. This part of the river valley is known as the Delaware Water Gap. Here the river has cut a gorge through the moun-

tains and thus formed a gap. On the left bank of the river is a large hotel. Notice that even the higher mountain slopes are heavily forested. Why is this so?

of these purposes. A study of a large map will show that a network of large rivers and small streams covers the state. There is hardly a section in the state five miles square through which some stream does not run. The chief natural regions have important rivers. The Delaware borders the Coastal Plain of Pennsylvania; the Piedmont is crossed by the Delaware, the Schuylkill, and the Susquehanna; the Appalachian Highlands are drained by the Lehigh and by the Susquehanna with its many tributaries, chief among which is the Juniata; the Allegheny Plateau has portions of the two main branches of the Susquehanna in the northeast, and farther west the Allegheny, the Monongahela, the Youghiogheny, and the Ohio, with the vast network of creeks and rivers that unite to form these principal streams. Of these rivers the longest and the

one which has the greatest effect on the geography of the state is the Susquehanna, with its various branches. Through the mountains it has carved broad, fertile lowlands, and has given richness to the rolling sections where gardens and live stock can thrive. Pennsylvania's wealth in rivers means that few, if any, areas of the state are without moisture for the soil and a water supply for the communities. *See Figure 9.*

Most of the streams are swift enough to furnish water power for factories and electric plants, but the state uses only a small part of the power that is available. However, because so many of the forests have been destroyed, only in the spring and late fall do many of the streams furnish water power sufficient for commercial purposes. Manufacturing companies do not find it profitable

to locate on such streams unless reservoirs for storing flood waters are first constructed, and this means great expense at the start. One of the largest power plants in the state is on the Susquehanna River at McCall Ferry. Many other power plants are situated along this river, and also on the Lehigh, Schuylkill, Allegheny, Monongahela, and Conemaugh rivers. One of the largest groups of power plants of the state is in Somerset and Cambria counties, where there are no big streams but a network of creeks and smaller rivers. There is hardly a county in the state in which there is not a water-power plant of some kind. See *Figure 10*.



Figure 10. A dam and hydroelectric plant on the Susquehanna River. It is estimated that Pennsylvania has 1,000,000 horse power of available water power. What does this mean?

Sometimes rivers are valuable as waterways for vessels carrying freight. Water transportation is usually cheaper than railroad transportation; therefore every mile of navigable water (that is, water through which vessels can pass easily) in the sections where manufacturing is done may mean a saving of money. The Allegheny, the Monongahela, and the Ohio are navigable throughout their whole courses in the state. The Ohio River has had a great deal to do with making southwestern Pennsylvania a rich and important part of the state. As early as 1794 "a line of two keel boats with bullet-proof covers and port-holes, and provided with cannon and small arms was operating between Cincinnati and Pittsburgh, each making a trip once in four weeks." In 1884 the trade of this stretch of the Ohio was valued at \$800,000,000. In the southeastern section of the state about fifty miles of the Delaware and six miles of the Schuylkill are navigable. One of the longest and most important rivers of the state cannot be traversed by vessels. This is the Susquehanna, which

winds its way through the state from north to south. As we have already seen, the Susquehanna supplies water power to many plants, and this explains why it cannot be used as a waterway. Along the valley through which it flows, however, run some of the state's most important railroads and roadways. Like many of the other rivers and streams of the state, the Susquehanna River is responsible for much beautiful scenery. In Bradford, Susquehanna, and Wyoming counties this river and its many small tributaries, and again in Luzerne and Monroe counties, the combination of river, mountains, and hills, have drawn thousands of people every year to the little towns and summer resorts in those vicinities.

Pennsylvania has no large lakes, but there are many ponds scattered through the northern part of the state. These are valuable as a source of food (fish) and as attractive summer resorts. The state is attempting to restock the lakes and streams with various kinds of food fish. There are eight state hatcheries (at Bellefonte, Pleasant Mount,



Pennsylvania Department of Forests and Waters

Figure 11. Lumbering in Sullivan County. The trees have been cut and sawed into convenient lengths for handling. How are the logs hauled out of the forest? Name the kinds of trees that grow in Pennsylvania.



By Ewing Galloway, N. Y.

Figure 12. A fire lookout tower. From the top of the tower men watch for and locate forest fires.

Torresdale, Union City, Corry, Erie, Reynoldsdale, and Tionesta), which produce brook trout, minnows, yellow perch, bass, and other varieties to be distributed in the state forest areas and wherever requested by private individuals.

Something to do. Choose for special study one of the rivers of the state. Prepare in black and white a map of the state which shows clearly the course of the river. Leave space below or at one side of the map in which to write all the interesting things you learn about this river.

A study test. Which of the following towns and cities are located on rivers?

Scranton	York	Lancaster
Pottstown	Williamsport	Hazleton
Johnstown	Gettysburg	Oil City
Greensburg	McKeesport	

5. PENNSYLVANIA'S FOREST WEALTH

Closely related to fertility of soil and water supply is another form of the state's wealth, which we have already mentioned, — *the for-*

ests. When the first settlers came to Pennsylvania, forests covered the entire land surface of the state, except for a few natural meadows and several rough mountain tops. Today, even though there has been almost continuous cutting of lumber for a hundred years or more, about 45 per cent of the total area of the state is still in forests, one fourth of this consisting of what is really one vast forest extending through the counties of McKean, Potter, Clearfield, Center, Lycoming, Clinton, and Elk. In spite of the extent of its forests there are several millions of acres which have been so carelessly wasted by forest fires and wrong methods of cutting that they are known as the Pennsylvania desert. On some of this "desert," forests may again be grown, but certain parts have been burned over so often that not only has the timber been burned but much of the fertility of the soil has been destroyed. As a result neither valuable trees nor crops can be grown on it for many generations. Such areas are truly deserts. It is no wonder, then, that the state is trying hard

to preserve its present forests and to plant new ones. It now has a department of forests and waters, under whose direction the whole state has been divided into twenty-five forest districts, each of which is in charge of a specially trained district forester. As a means of preserving present forests the state has purchased many thousands of acres of woodland in thirty-three different counties. It was the first state to permit its towns and cities to own forest land. *See Figures 11 and 12.*

Forests are important as feeders of moisture to streams and lakes. The mixture of roots and fallen twigs and leaves forms a kind of carpet which holds the rainfall and allows the water to seep into the soil, thus making its way underground to create springs and brooks and to replenish lakes and rivers. It is near the forested areas of the state that the small lakes and streams abound.

The forests are also valuable because of the many thousands of insect-eating birds which make their homes in them. The farmers of the state each year lose thousands of dollars' worth of fruit, berries, vegetables, and grain because of destructive pests which the right kind of birds would destroy. Thus every acre of wasted forest land may mean greater destruction of crops, because the birds are not attracted to these regions. Deer, wild turkeys, squirrels, quail, and pheasants are among the game to be found in the denser forest areas.

As "scenery" the state's forests are also wealth, especially when they cover the sides of hills and mountains. The State Department of Forests and Waters believes that every person who really gets acquainted with a bit of Pennsylvania's forests will protect them. To help to make the people acquainted with them, the department has set aside in the state forests camp sites which may be rented at a small cost.

The forests are valuable in another way, — as sources of timber for use in making railroad



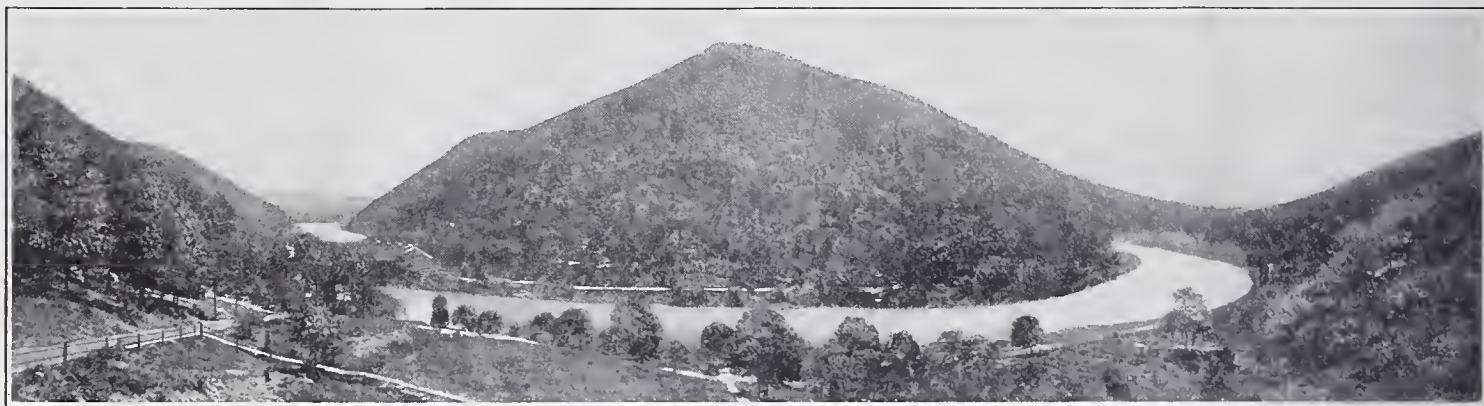
Pennsylvania Department of Forests and Waters

Figure 13. A plantation of pine trees in York County. Thousands of young trees have been planted on this rolling land. In what natural region is York County?

ties, furniture, and many other wood products. Pennsylvania ranks with Maine and New Hampshire in the production of lumber, these states producing about a quarter of a billion feet a year. Even this does not meet the needs of the state. Fully 80 per cent of all the lumber used in Pennsylvania each year and 72 per cent of the wood used in its pulp mills are imported from other states. It is not the idea of those who want to preserve the forests to stop the cutting of timber; they merely wish owners to cut wisely and to re-plant constantly. The State Department of Forests and Waters is ready to furnish to anyone who will ask for them young trees for reforestation at the cost of packing and transportation. The state-owned forests are being cared for in the way that it is hoped private owners will learn to care for theirs. *See Figure 13.*

6. PENNSYLVANIA'S MOUNTAINS A PART OF ITS WEALTH

Pennsylvania's *mountains* have been wealth in ways that have already been suggested. An early geographer referred to them as "the only natural cause of the fierceness and extreme stormy, cold winds that come northwest from



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Figure 14. A view of the Juniata River. This river winds its way in and out among the mountains for miles and miles. A railroad follows the valley of the

thence all over this continent and makes frost." This writer was partly right; but the mountains which chill the moisture-laden winter winds so that fierce snowstorms take place also chill the warm summer winds so that rainstorms that mean untold wealth to the soil take place. The mountains, then, are wealth because they help to cause storms. They are also valuable as areas on which forests can be grown to special advantage. Steep hillsides cannot be easily prepared for ordinary crops, for much of the topsoil may be washed down by rains. Trees, however, because their roots run deep, can be grown on even the steepest mountains. Therefore every mountain side in a region of plentiful rainfall is a possible forest if there is sufficient soil for the growth of trees.

As "scenery" we all know that, like the ocean, the mountains are a part of nature that has given unlimited pleasure to people in every age and every country. Some of the most beautiful scenery of the state is found in the Allegheny Mountains, and in the eastern part of the state is the celebrated Delaware Water Gap. See Figure 9.

You have already studied about the rivers of the state and know that it is often the combination of mountains and rivers which makes the most attractive scenery. Now for a few minutes you will be interested to think of

Juniata all the way from the Allegheny Front to the place where the Juniata joins the Susquehanna. Why are the valleys of rivers good places for railroads?

mountains and rivers in another way. If you will study the map of Pennsylvania carefully you will see that for ages a gigantic battle has been going on — not between armies of men but between the mountains and the rivers — and that the streams have won the victory. On the map find the West Branch of the Susquehanna and see how for many miles it skirts the edge of the mountains, seeming to try to find an opening through which to pour its waters. Finally the plunge is made, and the Susquehanna crosses the whole sweep of the Appalachian Highlands and is joined by the Juniata, which has also battled successfully with the mountains, as its irregular course so plainly indicates. See Figure 14.

Something to look up. Name several sections in Pennsylvania made beautiful by one of the following or by a combination of two or more:

- | | |
|---------------|-------------|
| 1. A river | 3. A lake |
| 2. A mountain | 4. A forest |

Completion test. Complete each of the following sentences by giving the correct reason:

- The forests of the state are wealth because -----
- The people are helping to plant new forests because -----
- Mountains help increase rainfall because -----
- Most crops cannot be grown on mountain sides because -----



U. S. Bureau of Mines

Figure 15. In a bituminous coal mine. These cars loaded with coal are on their way to the shaft where they will be hoisted to the surface. See Figure 16.



U. S. Bureau of Mines

Figure 16. A coal tippie. Notice how the cars of coal are hoisted up the incline railroad to the tippie. From the tippie the coal is loaded into railroad cars.

7. THE WEALTH HIDDEN IN THE EARTH

In the kind of mineral wealth hidden in the earth, Pennsylvania leads all the states of the nation. In 1919 the value of the mineral wealth taken from the earth was more than twice as great as it was ten years earlier. Listed in order of their value, these products are anthracite coal, bituminous coal, petroleum and natural gas, limestone, sandstone, slate, clay, basalt, iron ore, granite, mineral pigments, abrasive materials, talc and soapstone, silica, graphite, lead, zinc. Every nation in the world has heard of the coal mines and iron furnaces of Pennsylvania. Next to wheat, the things which are most necessary to the prosperity of nations are coal and iron. They must have steel (a form of iron) for tools, railroads, engines, buildings. Even the most backward nations need steel harvesters for their wheat fields, steel rails over which to send their grain to distant markets, and steel ships in which to carry it across the seas. Iron and steel are made from iron ore, a brownish kind of earth. Along the slopes of the Appalachian Highlands from New York to Alabama there are beds of iron ore of in-

ferior quality. This poor quality of ore is extensively mined in the Birmingham district of Alabama, which has no other supply near at hand. In Pennsylvania, until 1880, enough of this ore was mined to give the state first rank among the iron-ore-producing states, but since that time quantities of the best-grade ore have been so easily obtainable from other states that the steel companies of Pennsylvania have not found it profitable to use much of the inferior ore. Nevertheless, a considerable amount of iron ore is mined at Cornwall, in Lebanon County, and when the supply of higher-grade ore in Minnesota and the adjoining regions is exhausted, Pennsylvania can doubtless make use of all its ore.

The reason that thousands of tons of iron ore are brought into the state each year to manufacture into iron and steel is that a product very necessary for profitable steel-making is found in great abundance in the state, — conveniently located supplies of coal. Coal was discovered as early as 1762 near the site of Wilkes-Barre, and during the Revolutionary War was used at Carlisle for the manufacture of war materials. Hard (anthracite) coal is found in the Reading prong of the



U. S. Bureau of Mines

Figure 17. Coal barges on the Monongahela River. Thousands of tons of coal are moved up and down the navigable rivers of Pennsylvania on such barges.



Figure 18. A colliery where anthracite coal is prepared for market. The large building on the left is a breaker where the coal is sorted by machinery into various sizes.

Appalachian Highlands in ten different counties, occupying an area of about five hundred square miles. Soft (bituminous) coal is found in almost every county west of the crest of the Allegheny Mountains. Many of the richest deposits of soft coal lie near the banks of the Allegheny and Monongahela rivers, both of which are navigable and which unite to form the navigable Ohio. Therefore, many of the largest blast furnaces and steel mills have been located in the valleys of these rivers,

so that the coal can be quickly and inexpensively brought almost to the factory doors by river barges. This Pittsburgh seam of coal, which extends southward into West Virginia and southeastern Ohio, is equal if not superior to any soft coal in the world. It can be mined in great blocks, which makes it convenient to transport, and it produces a high grade of illuminating gas. Even within a small area the quality of coal varies greatly. That found in Allegheny and Washington counties produces an especially fine quality of illuminating gas, while Fayette and Westmoreland counties yield the famous Connellsville coking coal, which is especially adapted for use in making steel. The state's anthracite coal is more difficult to mine, but it is very valuable because it is more desirable as fuel for homes and factories and is the only bed of any size in the United States. See Figures 15-18.

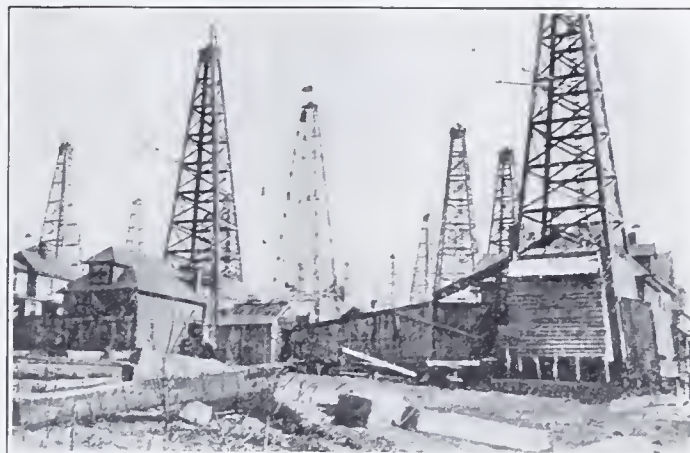
That the earth should contain vegetable matter, which in the course of time has become coal, seems strange. But even stranger is the fact that hidden in the

earth there are curious gases and a sluggish kind of fluid that men now use to make power and light. Extending the whole width of the western half of the state are rich supplies of petroleum and natural gas, both of which are used extensively for making gasoline. For several years Pennsylvania ranked fourth among the states in the production of natural gas and its products. The natural gas is also piped to cities and towns to be used for illuminating purposes.

Petroleum yields a large number of useful products in addition to gasoline, chief among which are paraffin, benzine, naphtha, and lubricating oils. These products are all obtained by a heating process which is called *refining*. Crude oil, which is petroleum in the natural state in which it comes from the ground, is often burned for fuel, but this use of it is very wasteful because all the by-products which can be obtained by refining are lost. Most of the oil of Pennsylvania is sent from the wells through pipe lines to the great refineries, where the many valuable products are extracted. See Figure 19.

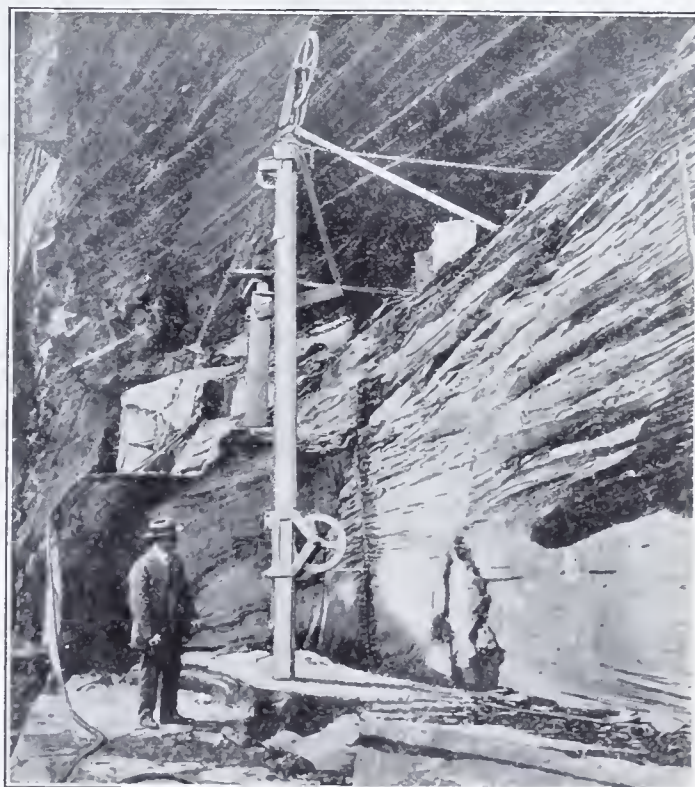
In other minerals than coal Pennsylvania holds high rank among the states. Clay mining and the quarrying of limestone, sandstone, and slate are some of the important mineral industries. The state has a variety of clay soils suitable for making many different kinds of articles, from common heavy earthen dishes to the most fragile china. Many kinds of building bricks are also made. The largest slate quarries in the United States are in Lehigh and York counties, and some of this slate is the only kind obtainable for making school blackboards. See Figure 20.

Because of its rich supplies of clay, limestone, and silica, the Lehigh district also makes nearly one third of all the cement produced in the United States, and is the most important cement-producing region in the world. Cement is increasingly valuable because it can now be used for buildings, ships, piers, and roadways. The silica used in cement is another valuable part of Pennsylvania's stored-away wealth. This is a special kind of sand, from which can be made window glass and hundreds of other glass articles. An area of this sand runs through New Jersey, Pennsylvania, Ohio, and Virginia. Many of the bottles for grape juice, ginger ale, and milk used in this country are made from glass produced in Pennsylvania. See Figures 21 and 22.



U. S. Bureau of Mines

Figure 19. Natural-gas wells in Pennsylvania. These wells are within the limits of a town. Which do you think is the cleaner fuel, gas or coal?

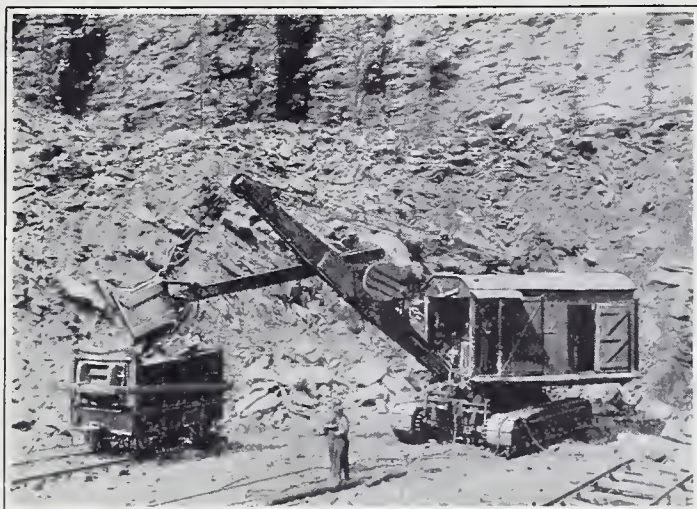


U. S. Bureau of Mines

Figure 20. Mining slate in a Pennsylvania quarry. The wire saw makes a cut 12 feet deep and 100 feet long. Notice how the slate is laid down in layers.

A mineral test. 1. Which of the following minerals does Pennsylvania have? 2. On an outline map of the state indicate where some of these minerals are found. 3. Arrange in the order of their importance the minerals found in the state, and give several important uses for each.

coal	silica	slate	gold
iron	sandstone	zinc	silver
oil	clay	copper	lead



Courtesy of Portland Cement Association

Figure 21. A limestone quarry. The dredge scoops up the stone and deposits it in small cars such as you see in the picture.



Courtesy of Portland Cement Association

Figure 22. A beautiful section of cement roadway in Crawford County. There are many miles of these fine cement highways in our state.

Giving reasons. Give reasons to explain why

1. The iron ore that is manufactured into iron and steel in the Pennsylvania mills comes largely from iron mines near Lake Superior.

2. Coal has made the Pittsburgh district the greatest iron-and-steel center in the whole United States.

3. The burning of crude petroleum is a wasteful process.

8. PENNSYLVANIA'S IMPORTANT PORTS

An important part of the natural wealth of the state is the *port of Philadelphia*. Although Philadelphia is one hundred miles distant from the Atlantic Ocean by the nearest water route, it is nevertheless an ocean port, for the channel of the Delaware River, on which Philadelphia is situated, is deep enough to allow large freight-carrying ocean vessels to enter in safety. More than sixty different steamship companies now have regular sailings from this port. Philadelphia is near the port of New York, but vessels from the south can reach Philadelphia more readily than New York, and it takes only a few hours longer to reach Philadelphia from points east and north-east. Therefore the port of Philadelphia helps increase very greatly the amount of shipping that can be handled by the Atlantic ports. At times the congestion in New York harbor has been so great that without another port as near as Philadelphia the ocean-going trade would have been greatly handicapped. See *Figures 23 and 24*.

Nature has made possible this port, but without the efforts of the people not only of the city but of the state and even of the nation there would be no great commercial port. This is the reason. Both the Delaware and the Schuylkill rivers wash down great quantities of mud, sand, and gravel. If nothing were done, these would soon choke the main channel to the ocean so that large vessels could not force their way through it. Constant dredging is therefore necessary to keep the channel to the mouth of the Delaware free from obstructions. In this work the government at Washington and the state have co-operated, for it is important to the whole nation, as well as to the whole state, that Philadelphia be an efficient ocean port. The nation and the state have also combined to maintain buoys and other channel markers to

help navigation. Although Philadelphia's winters are not extreme, yet ice usually forms during parts of the winter months, and while the river traffic might not be totally blocked, it would be hampered unless the ice were broken up. Therefore the state maintains a powerful fleet of ice-boats which keep the channel wide open in the severest winter weather.

Pennsylvania is also fortunate in having ready access to the nation's greatest system of lakes. That is, it has 45 miles of *frontage on Lake Erie*. However, there is only one port of importance in this

stretch of lake shore that comes within the area of Pennsylvania. This is Erie, about half-way between the Ohio and New York state boundaries. The harbor is a natural one, and therefore the cost of maintaining it is comparatively small. Through this lake port large quantities of iron products and coal are shipped. Wheat from the great wheat fields of the West is brought to Erie and then shipped to the ocean port at Philadelphia or to that at New York. See *Figure 25*.

The lake frontage is wealth to the state for other reasons. The growing of grapes has long been an important industry in the state, but grapes require a long growing season. In the northeastern and north central parts of the state, where large quantities are grown, early frosts would in many years prove fatal to the grape crop if it were not for the fact that the moisture-laden air from Lake Erie penetrates many miles south and west of the lake, and

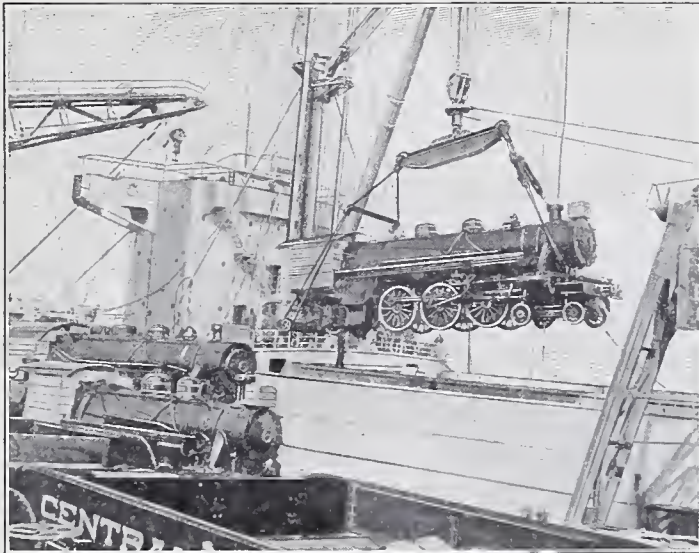


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Figure 23. A section of Philadelphia's water front on the Delaware River showing a few of the many docks. The bridge across the Delaware connects Philadelphia with Camden, New Jersey.

so tempers the climate that there are neither severe early frosts nor late killing frosts. Hence the state's grape belt has become important. Another reason that makes this strip bordering on Lake Erie wealth to the state is the large supply of fish taken from the lake.

Although Pittsburgh is far from lake or ocean, it is one of the nation's great river ports. At its wharves are loaded and unloaded each year hundreds of barges that go by way of the Ohio River to the Mississippi and thence to the Gulf of Mexico. The Department of Commerce at Washington defines the port of Pittsburgh as "that portion of the Ohio River between the confluence of the Allegheny and Monongahela rivers, the length of the harbor being 27.7 miles, and of the shore front 54.4 miles." How valuable a port can be to a state is readily seen in the case of Pittsburgh. The steel works that fill the valley have grown in size and importance partly because barges ply



Wide World Photos

Figure 24. Loading locomotives in Philadelphia harbor. These are part of a shipment of forty-four engines bound for Rio de Janeiro, Brazil. Brazil has millions of tons of iron ore. Why then does it import its iron and steel products from the United States and other countries?

between the steel works and the large deposits of coking coal that lie close to the shore of the Monongahela River, thus furnishing fuel at small cost.

Explaining terms. Write sentences containing the following words or phrases. Let each sentence show what the word or phrase means:

buoys	natural harbor
dredging	barges
ice-boats	coking coal

Some comparisons to make.

1. The population of Pennsylvania is 9,631,350. How many and what states in the United States have a larger population? 2. Pennsylvania's area in square miles is 45,126. How does it rank in size among the states? 3. How does the population per square mile in Pennsylvania compare with that in New York State?

Special credit work. 1. Find out and explain to the class why coke is the best fuel to use in blast furnaces. 2. How coke is made from coal. 3. How the anthracite and bituminous coal beds were made.

Giving reasons. Complete each of the following sentences by giving a reason for the fact which it states.

1. The principal dairy regions of Pennsylvania are located near the large cities because

2. The limestone deposits of Pennsylvania are of great value to the farmers because

3. The farmers of Pennsylvania raise more corn and oats than wheat but wheat is the most important cereal export because

4. The plain which borders Lake Erie has become important for the growing of grapes because

Can you answer these questions? 1. Why is the rainfall in Pennsylvania more abundant than it is in eastern Montana?

2. Why is the length of the growing season of great importance to farmers?

3. Should you expect the growing season to be longer in the interior of Pennsylvania or near the coast? Why?

4. How are forests feeders of moisture to streams and lakes?

5. What is the state of Pennsylvania doing to protect its forests?

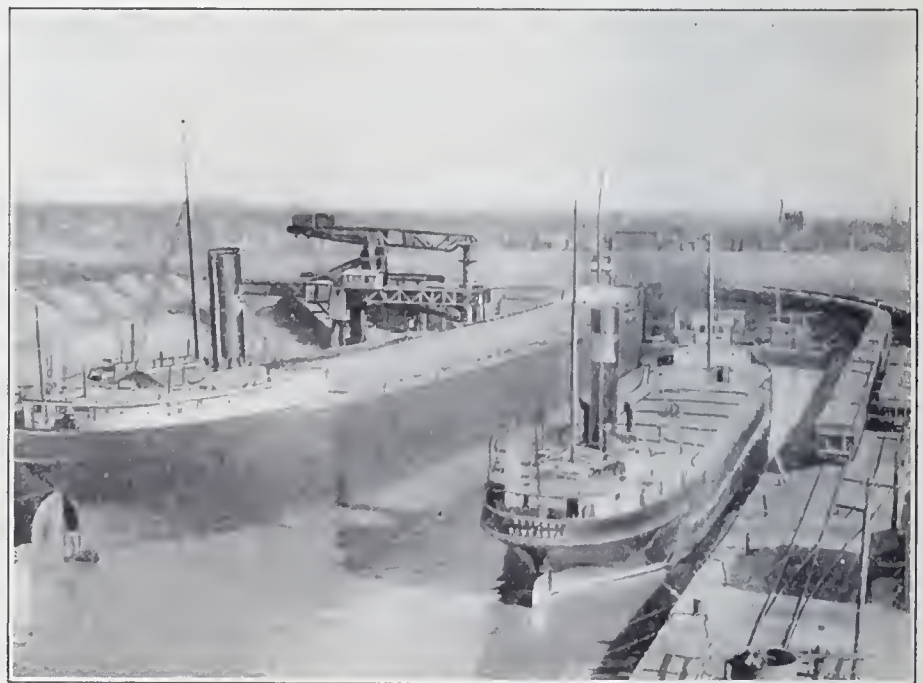


Figure 25. Part of the port of Erie. These are lake freighters which have come down the Great Lakes from Duluth and other ports, bringing iron ore and grain for mills in Pennsylvania.

IV. PENNSYLVANIA'S MADE WEALTH

1. MANUFACTURES

In the preceding pages we have spoken of the different kinds of natural wealth, such as soils, coal, and forests, that abound in Pennsylvania. It is only when a thing is used that it becomes wealth. Money is not wealth unless we can use it to exchange for food, clothing, and other things we need. This is also true of all the things that we speak of as wealth provided by nature. Every inch of fertile soil, every ton of coal, or clay, or iron ore, in Pennsylvania is valueless until it is used. Some of nature's gifts can be used in the form in which they are taken from the soil, as wood and coal for fuel, and vegetables for food. But most things have to be changed before they can be very useful. Even hard coal has to be washed and graded, and such products as wool, clay, sand, and petroleum have to be greatly changed before they become clothing, bricks, window glass, or light. This process of changing we call manufacturing. In every part of the United States today two kinds of work are going on ceaselessly: the taking of natural resources from the earth and the changing of them in hundreds of ways. Some states do more of one kind of work than the other. Massachusetts, where for many years the largest cotton factories in the world were situated, does not raise a pound of cotton, and many of the states in which acres of cotton are grown did not for many years have a single cotton-cloth factory. Pennsylvania, more than most states, combines the two kinds of work, — taking things from its rocks and soils and changing these into manufactured goods. It ranks first of all the states in the value

of its minerals and second in the value of the goods it makes. According to the government census reports there are 264 different classes of manufacturing concerns in the United States, and out of these 264 Pennsylvania has 245. Many products of Pennsylvania's factories are made by using the clay, sand, iron ore, coal, and graphite found in the rocks of the state.

Pennsylvania also has some of the largest silk mills and sugar refineries in the United States, yet none of the silk or cane used in them is grown in the state. The chief reasons that silk, cane sugar, and cotton are brought to Pennsylvania to be made into articles of many kinds are that coal for producing power to run the machinery of factories is near at hand, and the location of the state is such that it can be readily reached by water and railroad. To make the product of their factories true wealth the people must buy from outside the state many raw materials such as silk, cotton, and iron ore, to use in connection with the state's coal and other power resources. They must also ship large quantities of their



Figure 26. A sugar refinery at Philadelphia. The larger part of the raw sugar for Philadelphia's refineries comes from Cuba. Some comes from the Philippine Islands and from Java also.



Figure 27. A view of the Tunkhannock Viaduct at Nicholson. Notice what a fine concrete bridge this is. The trains of the Delaware, Lackawanna, and Western Railroad pass over this viaduct.

2. TRANSPORTATION A PART OF PENNSYLVANIA'S MADE WEALTH

Fortunately for Pennsylvania, in the early years the state was the great highway to the western part of the young nation. The first rude highways from east to west followed the Indian trails. By 1750 two wagon roads crossed the Allegheny Mountains, one leading from Philadelphia to Pittsburgh and the other from the Potomac to the Monongahela. Today a road map of the state shows a network of lines that spread out like a spider web to include every

products to other parts of the world by means of roads, railroads, and steamship and barge lines. See Figure 26.

A raw materials test. The following is a list of Pennsylvania's most valuable manufactured products with the value of each for a recent year. Try to find out what are the principal raw materials used in the manufacture of each product.

Iron and steel: Steel works and rolling mills	\$1,012,297,366
Silk manufactures	306,524,028
Foundry and machine-shop products	303,116,526
Printing and publishing	255,333,000
Electrical machinery, apparatus, and supplies	247,442,426
Iron and steel: Blast furnaces	244,501,253
Knit goods	234,166,337
Car and general construction and repairs, steam-railroad repair shops	193,988,387
Petroleum refining	186,568,769
Bread and other bakery products	164,863,331
Slaughtering and meat packing	131,473,427
Cigars and cigarettes	124,324,967
Leather: Tanned and finished	101,814,881
Coke, not including gas-house coke	100,086,571
Clothing (except work clothing), men's, youths', and boys'	97,338,993
Sugar refining, cane	95,684,436

district of the state, so that the poorest road now offers speedier and more convenient transportation than the best road before 1800. Until within recent years roads were laid out for the most part through valleys, around hills, circling swampy and low areas, and avoiding ledges. These were made in the agricultural period, when wagons were the chief means of carrying produce to railroad and steamship centers. But when the state decided to spend hundreds of millions of dollars in improving its roads, its chief aims were to use as many straight lines as possible and to make the roadbeds firm enough for the heaviest trucks to travel over rapidly. The state highway department first made a survey to find the best short routes; it then made tests of the soil every 1500 feet to find out what kind of foundation would be necessary to make the best road. Everywhere its roads are now being made for speed and efficiency. The Lincoln Highway, from Trenton to Philadelphia, has been shortened about $2\frac{1}{4}$ miles by eliminating unnecessary curves and loops. But in those sections of the state where the roads lead not to important industrial centers but to places of beautiful scenery, many of the windings and twistings

of the old wagon roads are retained to preserve spots of natural beauty and to give the best possible views. The state already has thousands of miles of the best highway known to modern road engineers. The brick, concrete, macadam, gravel, slag, and stone used for the roads are all products of the state. Thus the state's roads represent a part of its natural wealth.

Quite as important to the prosperity of the state as the roads are the railroads which cross it in every direction. Although Pennsylvania is the thirty-second state in size, it is third in mileage of railroads. When Charles Carroll was appointed Maryland commissioner for the Baltimore and Ohio Railroad, which traverses the western portion of Pennsylvania, he said of his appointment: "I consider this among the most important acts of my life, second only to my signing the Declaration of Independence, if even it be second to that." Commissioner Carroll understood the value of railroads as a means of bringing prosperity to any state through which they ran. One way of measuring Pennsylvania's prosperity is to make a list of her miles of active railroad.

The managers of the railroad lines connecting important centers are constantly making improvements in their roadbeds and introducing devices for increased speed, so as to cut down their running time as much as possible. To save twenty minutes between New York and Buffalo the Delaware, Lackawanna, and Western spent \$12,000,000 to construct a monstrous viaduct of steel and concrete near Scranton. The bridge over the Delaware between Philadelphia and Camden, which cost over \$28,000,000, lessens the running time of trains entering the state. Important as are the state's three ports, Philadelphia, Erie, and Pittsburgh, without its railroads and railroad centers Pennsylvania would still be only an agricultural state. *See Figure 27.*

Another means of transportation is fur-

nished by certain of the state's rivers. The Delaware, the Schuylkill, the Allegheny, the Monongahela, and the Ohio are the important streams used in this way. But in addition to these the people have built canals on which a special kind of boat can be used. The state's most ambitious canal was planned to connect the Delaware and Ohio rivers, by means of which Pennsylvania would have had a continuous "Atlantic to the Gulf" water route. The canal was constructed as far as the steep slopes of the Alleghenies, but there was not a gap through which it could be continued. Since a canal could not climb a mountain, the Portage Railroad was built to carry boats and goods over the divide. But this was slow and expensive. Today, because of efficient roads and railroads, the canals are not important parts of the transportation system of the state. There are only three lines in operation: one 60 miles long, from Easton to Bristol (Delaware Division Canal Company); one 47 miles long, from Coalport to Easton (Lehigh Coal and Navigation Company); and one 89 miles long, from Port Clinton to Philadelphia (Schuylkill Navigation Company).

Word study. Write sentences in which you use the following words so as to show clearly what they mean:

- natural wealth
- transportation system
- natural resources
- state highway department
- canals
- water route
- carrying produce to railroad centers

Making a list. Make as long a list as you can of the railroads which serve the state of Pennsylvania. Check the names of the railroads which you think are the most important.

Special credit work. On an outline map of the state indicate your community and draw in any railroad, highway, river, or canal that connects it with other parts of the state.

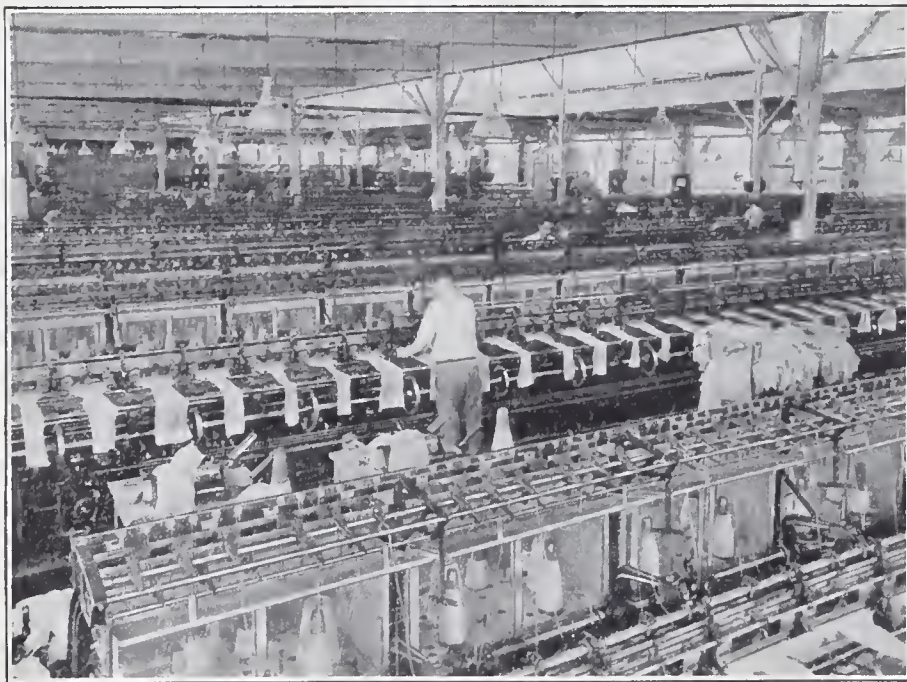
V. THE CITIES OF PENNSYLVANIA

1. THE PEOPLE LIVE AND WORK IN GROUPS CALLED COMMUNITIES

The millions of people who have lived in the state in the past three hundred years, and the millions living here now, have made their homes on hillsides or in valleys; and wherever they have lived they have formed what we call *communities*. Since there are several thousand communities in the state, it would be impossible even to mention them all here, but it is helpful to know something about the most important ones. No two persons would agree as to which are the most important communities in the state. Some people would surely include Gettysburg, because the greatest speech of our greatest president was given there; others would name Pittsburgh, because of the great steel works known throughout the world. There is one way, however, of deciding which places may well be mentioned in a short list. Since it is *people* and not rivers and soil that are most important, naturally the largest groups of people are in

one sense the most important ones. Therefore the places selected for special mention below are the largest communities. They are grouped according to the natural regions in which they are located.

The following paragraphs will show you some of the ways in which the people are using the natural wealth of the state. Every industry, every occupation, is related, either directly or indirectly, to some one or several of the natural resources of the state. It is perhaps difficult at first to see how the work of the doctor, the lawyer, the storekeeper, and the hundreds of stenographers, bookkeepers, and clerical helpers has even the remotest connection with the natural wealth of the state. But there is a straight line of connection between every worker and some one or many of the state's natural resources. For every worker in a coal mine or brickyard there must be many others to provide for him such necessities as food, clothing, transportation, health, and legal advice.



Photograph from Ewing Galloway

Figure 28. An interior view of a silk mill in Philadelphia. This is the hosiery department of the mill. Notice the many hose in the process of being knitted.

Special credit work. Make a list of five important communities near you, and tell why they are important.

2. CITIES OF THE ATLANTIC COASTAL PLAIN

The strip of Coastal Plain that belongs to Pennsylvania seems too small in area to be of vast importance. Yet as long as the tides sweep up the Delaware River, Philadelphia will be a vital spot in the nation, just as it was for the period of more than a hundred years when Pennsylvania was a colony. This Coastal Plain is one of the means by which the

United States is drawn closer to all the other nations. Although there are two important cities in this region, Philadelphia and Chester, it is only natural that the one having the better location should be the greater. Both are on the navigable part of the Delaware River, but Philadelphia is also at the mouth of the Schuylkill, and is therefore the favored city.

Philadelphia, the third largest city in the United States, was "started" in the Old World. Before William Penn ever saw America he had already planned out on paper the city of "Brotherly Love," which was to be the center of his colony. Since the Declaration of Independence was signed here, the Constitution of the United States was written here, Washington lived here as president, and such men as Franklin, Morris, and Girard have lived and worked here, Philadelphia is one of the best-known cities of the world. Not only people but things are constantly passing through the city. There is never a moment, day or night, year in and year out, when the heavy puffing of great engines drawing precious burdens of meat, coal, iron, and a thousand things that the whole world wants is not heard in the freight yards or along the docks. The city has seventy railroad freight stations, — more stations than has any other city in the United States.

But the city is much more than a gateway for people and things; it is a place where nearly two million people live and have their places of work. The homes and the workshops are the permanent part of the city. As a city of homes Philadelphia leads all the great cities, for it has more than 400,000 dwellings (almost one to each family in the city). The city also has more than 5000 acres of public parks (including Fairmount Park, the largest municipal park in the United States), which give the people the kind of recreation that adds to the value of the homes; it has an un-

usually efficient school system, many special schools and colleges (including the University of Pennsylvania), a free public-library system, and some of the finest stores in the world. But of course all these without the thousands of "workshops" of the city would have little value. It is the sum of all these things that makes a city great.

Nature's contribution to the prosperity of the city includes the Delaware and Schuylkill rivers, the soil fertile enough for the growth of trees in its parks, a climate that is free from extremes, and a sufficient rainfall for supplying the city's needs. This combination has helped make the city ideal not only for homes but for workshops. Workshops are always located as near railroad and port conveniences as possible, but if there were excessive heat, lack of water for homes, poor schools, no recreation places, it would be difficult to attract to the city the best kind of workers. Because of what nature does and what the people do, Philadelphia today holds first place in the United States in the value of its locomotives, steel ships, street cars, saws, storage batteries, dental instruments, and talking machines (products which use the coal produced in the state and the state's iron ore, or ore brought from other states); textiles, hosiery, carpets, and felt hats (which are chiefly made from wool and silk produced outside the state but are manufactured in factories that require the coal of the state's mines and the water power of the Schuylkill River); bone buttons and leather (much of the latter made from goatskins brought from outside the state but requiring some of the products of the state, as well as coal and water power, for their manufacture). The petroleum products, fertilizers, and chemicals made in the city use the petroleum from the western part of the state and the limestone and other mineral products from the neighboring limestone valleys. *See Figure 28.*



Figure 29. Shipbuilding yards in Chester. This city is located on the Delaware River and is several miles nearer the sea than is Philadelphia. It has a long river

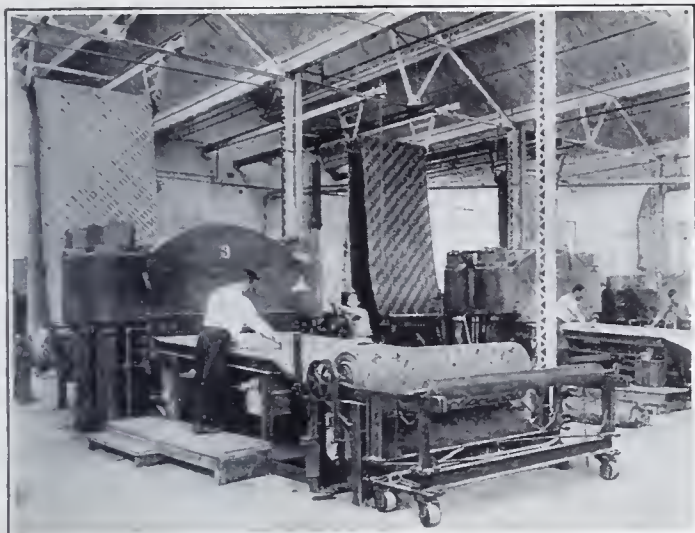
front and excellent steamship connections with Philadelphia and with ports to the south. Why do you think Chester is a good location for shipbuilding yards?

Chester, thirteen miles south of Philadelphia, is the oldest town in the state. It was settled by Swedes in 1644 and called Upland until the arrival, in 1682, of William Penn, who gave it its present name. Here was held the first meeting of the state's Assembly, and here is still standing on Market Street an ancient building which has been used continuously longer than any other public building in the United States, — as courthouse of Chester County, then of Delaware County, later as the hall of Chester Borough, and finally as city hall. Chester is a great shipbuilding center, and is also known for its workshops in which are made steel castings, locomotives, boilers, engines, fire brick, cigars, plaster, and paper, using the state's natural resources of iron ore, coal, clay, tobacco, and lumber. See Figure 29.

Something to find out. Find out what cities of the United States outrank Philadelphia in population.

3. CITIES OF THE PIEDMONT BELT

As you know, "Piedmont" means *at the foot of the mountains*, and this accurately describes the region in which **Lancaster**, **York**, **Norristown**, and **Pottstown** lie. But this region was not always a land of rolling hills and broad valleys. Once it was part of a vast mountain range whose summits towered as high as those of the Alps today. The changes that depressed this whole area and wore down the mountain peaks to low-lying, rounded hills made the soil very fertile, so that from the days of the earliest white settlers this has been the great garden region of the state. **Lancaster** and **York** are both county seats of counties of the same names, and are centers of thriving agricultural sections through which the Susquehanna flows. The cities are proud of their great manufactures, but perhaps their greatest value to the state lies in the fact that they are centers for receiving and forwarding the vege-



Photograph by Ewing Galloway, N.Y.

Figure 30. A linoleum factory in Lancaster. In this department the linoleum is finished with a smooth and hard surface.

table and dairy products of the surrounding country. **Lancaster** is the oldest inland town in the state and from 1799 to 1812 was the capital. It was also the home of President Buchanan, Thaddeus Stevens, and General John Fulton Reynolds. In recent years it has grown rapidly because of the increasing business of its factories, but its picturesque open markets, tended by women, are still a feature of the place. Among the many industrial establishments of the city are the blower and forge works and the factories making watches, dental supplies, umbrellas, and cigars, all of which use at least two kinds of the natural wealth supplied by the state. The city also has large silk mills and linoleum plants. See *Figure 30*.

York is a modern industrial city. It contains several of the largest industries of their kind, all of which use either the coal, iron ore, forests, or clay of the state, — the manufacture of refrigerating machinery, safes and vaults, tire chains, wall paper, and various other products. See *Figure 31*.

Norristown (the county seat of Montgomery County) and **Pottstown**, both on the Schuylkill River, are situated in districts that are especially rich in industrial wealth. The river furnishes power for many factories, and helps make this section a fruitful agricultural area. The soil of the surrounding country is fertile, making it possible for the cities to get vegetables and dairy products for their own use and to forward them to Philadelphia and other cities. Both cities are near supplies of mineral wealth; there are coal, iron ore, and clay in the vicinity of Pottstown, and iron mines and quarries of marble, granite, and limestone near Norristown. It is not strange, then, that with an abundance of water power, coal, iron, clay, marble, and limestone the cities should have thriving workshops using these and other products. **Norristown** uses its coal, iron ore, and water power in making wire, screws, boilers, bolts, lanterns, and knitting machinery. It also combines its coal and water power in making hosiery, underwear, shirts, paper boxes, and rugs, all of which require raw materials from outside the state. In **Pottstown**, bricks are made from the clay soil; pig iron, nails, agricultural implements, and boilers use the state's coal and iron ore; the silks, hosiery, and other similar products require materials that are grown or mined outside the state. What are some of these materials?



Figure 31. One of the important industrial plants in York which gives employment to hundreds of people. Here ice-making machinery and refrigerating machinery are made.



Figure 32. Looking north on one of the main streets of Scranton. The large building at the right is the courthouse. Scranton has many modern office buildings, well-paved streets, and beautiful parks.

4. CITIES OF THE APPALACHIAN HIGHLANDS

One of the conspicuous things about the cities and towns of Pennsylvania — those which we have already mentioned and those to be discussed here — is that most of them contain large factories which make some kind of iron or steel goods, — hairsprings for watches, needles for compasses, or battleships and locomotives. The reasons for this are *coal* and *water power*. To change the brownish earth, called iron ore, so that it can be used to make stoves, rails, or any other iron product, it is first made into bars of iron which we call pig iron. This transformation takes place in huge furnaces which must create heat great enough to change the mixture into a fiery liquid. To produce this heat requires enormous quantities of coal. Large amounts of pig iron are shipped to other states, but millions of tons are also used within the state. To change pig iron into delicate watch springs, or ponderous locomotives, or any other iron product, requires either steam power, for which coal is necessary, or water power from rapid streams. Pennsylvania has almost inexhaustible resources of coal and many swift streams,

so that its factories have easy access to one of the sources of cheap power.

Since these are the conditions, it is no wonder that both the cities of the Piedmont Belt and those of the region which we are now discussing should be noted for their hundreds of iron and steel products. With the exception of Reading and Altoona, the cities of this section are all in the anthracite coal belt, and because this belt contains the only rich vein of anthracite in the United States the towns and cities lie close together.

Coal is cheap, transportation facilities

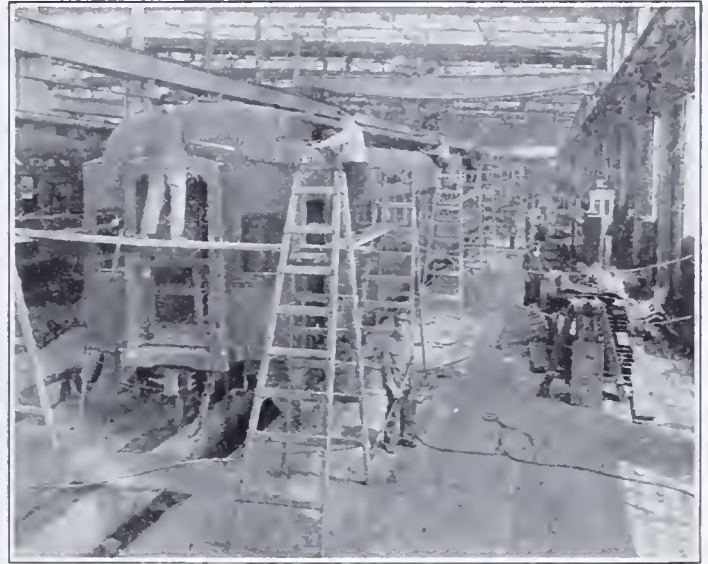
are good, and there are plenty of workers. The mines and the factories doing heavy work require men, but many of the women of these families are glad to become workers in the factories for making silk, hosiery, and other things requiring lighter work. In almost every city or large town in which large numbers of men are required in the coal mines, there you will find silk, hosiery, or lace mills in which the wives and daughters of the miners work.

Scranton (the county seat of Lackawanna County) is the greatest coal-mining city in the world, the second city of the United States in the manufacture of silk, and an important trading center for a large part of the agricultural population of the county. Many of its products are made of steel, — stoves, grates, furnaces, boilers, engines, axles, and horse-shoes, — but its huge button mill, with a capacity of 3,000,000 buttons a day, and its large silk, lace, woolen, and cotton mills make the city, like so many others of the state, an all-round manufacturing center. **Dunmore**, only a few miles from Scranton, and **Carbon-dale**, farther north, also owe most of their prosperity to their coal mines. The deposits of clay, silica, and stone are responsible for brick-

yards, quarries, and glass factories; the coal, railroads, and women workers are responsible for the presence of the silk and knitting mills. See *Figure 32*.

Wilkes-Barre (the county seat of Luzerne County) is the center of the anthracite coal region and of a region of beautiful scenery. Here the men are employed in plants producing iron goods (locomotives, wire rope, axles, and adding machines), and the women in lace, silk, and underwear factories. The chief occupation of **Pittston**, **Kingston**, and **Nanticoke** is the mining of coal, much of which is kept in the cities to use in the factories and workshops that make stoves, silk, paper, terra cotta, cut glass, and other products. There are also brickyards and quarries which contribute to the prosperity of the cities. In each city is located some kind of iron or steel manufactory and silk or hosiery mills, the latter profiting by the large numbers of women and girls, who cannot be employed in mines, machine shops, and other places of heavy work. **Hazleton**, in the southern part of Luzerne County, **Shenandoah**, **Shamokin**, and **Pottsville** lie among the hills that are rich in anthracite. Each of these also contains important manufacturing concerns producing iron, silk, or woolen goods. In **Hazleton** the chemical-filter works and the automobile-piston-pin concern are of special importance. **Pottsville's** position in the center of the greatest coal county of the state (Schuylkill) makes it one of the largest cities of this section. **Shamokin**, in Northumberland County, mines coal, manufactures iron goods, hosiery, shirts, silk goods, and makes bricks and cement, thus mining three products of the state (coal, clay, and limestone) and using all of these in manufacturing goods.

Of the two cities which are outside the anthracite belt, **Reading** is the larger. It is the county seat of Berks County, the center of a prosperous agricultural section, and is



Photograph from Ewing Galloway, N.Y.

Figure 33. Repairing passenger cars in the Reading railroad shops. Find Reading on the map on page 3 and notice that it is an important railroad center.

situated on the Schuylkill River in one of the important valleys through which the main railroad lines of the state run. This position makes it an ideal manufacturing city and a distributor of the vegetable and dairy products of the county. It has one of the largest iron foundries in the world, and a number of factories making machinery, castings, iron pipe, silk underwear, and gloves as well as railroad repair shops. See *Figure 33*.

Altoona lies among the mountains of Blair County near the celebrated Horseshoe Curve, which is considered one of the scenic spots of America. In the city are manufacturing and repair shops of the Pennsylvania Railroad Company, which make steam and electric locomotives, freight and passenger cars, car wheels, and other railroad necessities. The clay soil is used for making bricks, but most of the other manufactures depend upon materials obtained outside the state.

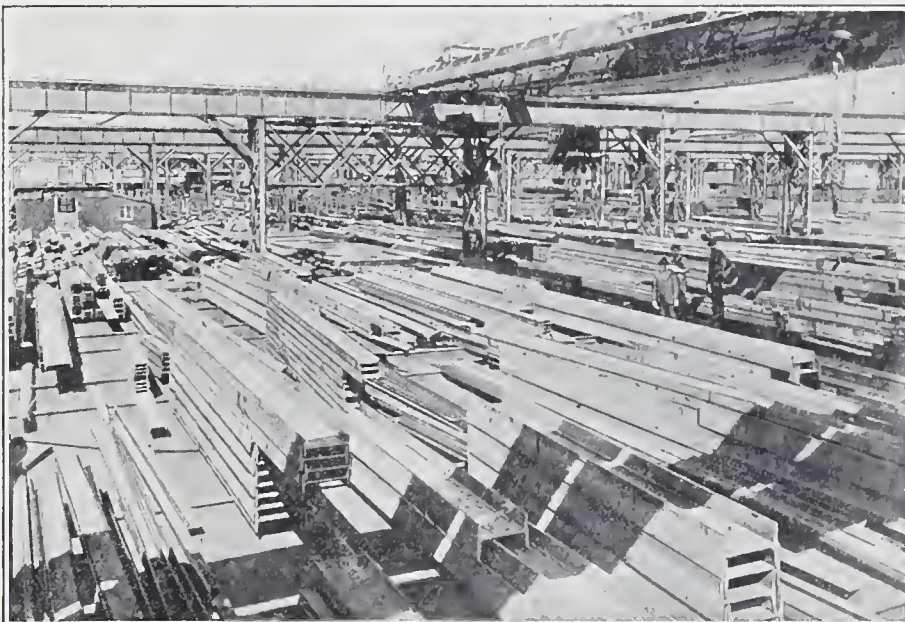
5. CITIES OF THE APPALACHIAN VALLEY

This valley is crossed by four rivers — the Delaware, the Lehigh, the Schuylkill, and the Susquehanna — and is traversed by many smaller streams. It contains deposits of lime-



Airview by Airmap Corporation of America, N.Y.

Figure 34. An airview of Allentown. This city is not only an important industrial center but it is an attractive residential city. On what river is Allentown located?



Photograph by Ewing Galloway, N.Y.

Figure 35. Piles of steel beams awaiting shipment in the yards of a steel-manufacturing company in Bethlehem. For what purpose are such beams used?

stone and iron ore and some of the most fertile soil of the state. Allentown, Easton, and Bethlehem are located in the cement-

producing area and near transportation facilities that could not be surpassed. **Allentown**, chosen as the hiding place for the Liberty Bell during the Revolution, is the county seat of Lehigh County. It is the center of cement production and has nearly three hundred different industries, among which are the manufacture of trucks, cement machinery, wire, paper boxes, cigar boxes, shoes, and silk. North of the city is a private game park containing a trout hatchery. See *Figure 34*. **Easton**, the county seat of Northampton County, is near the great cement belt and slate quarries. Its manufactured wealth consists of stoves, pipes and castings, drills, agricultural implements, woolen goods, silks, hosiery, and many other products. Lafayette College is located here. Both **Bethlehem** and **Lebanon** contain large plants of the Bethlehem Steel Company, which during the World War produced 65 per cent of all the munitions manufactured in the United States, and controlled five shipbuilding plants. Besides the plant of this steel company, **Bethlehem** has foundries, machine shops, spark-plug factories, a graphite plant, factories for the manufacture of silk, hosiery, flour, and other products, which make it an all-round manufacturing center. The Lehigh River, the Lehigh Coal and Navigation Canal, and the five railroads which pass through the city make it an impor-

tant distributing center. Lehigh University is also located here. See *Figure 35*. Because the Lebanon Valley has underlying limestone rock



Figure 36. A group of state capitol buildings at Harrisburg. Try to find out how many million dollars this group of buildings cost the state of Pennsylvania.

These buildings are laid out according to much the same plan that the national capitol buildings in Washington are. Is Harrisburg a good location for a state capitol?

of the quality needed in blast-furnace work, the chief industry of **Lebanon** is the production of iron and steel. What is believed to be the largest plant in the United States for making bolts, nuts, and spikes is located here. There are also factories for the manufacture of silk, handkerchiefs, hosiery, shoes, and other products. The rich limestone valley in which Lebanon lies is one of the richest agricultural areas of the state.

Harrisburg, the capital of the state since 1812, lies almost midway of this fertile limestone valley, at the spot which became the earliest historic crossing place on the Susquehanna. Most of the early migration into western Pennsylvania and the Ohio Valley passed this way. It was long known as Harris's Ferry, the first ferry right having been granted to John Harris, the son of the founder of the city. Today four great bridges span the river and thus make the city an important point in the great east-to-west highway and railroad travel. It is, then, one of those all-round American communities, — a railroad center, a manufac-

turing center, and a political center. The chief industrial activities are the making of steel pipe and bookkeeping machines; the rolling of steel; the manufacture of builders' supplies, shoes, and knitted goods; and printing. The natural beauty of the place as well as its political importance have made the state capital a city of attractive homes. See Figure 36.

6. CITIES OF THE ALLEGHENY PLATEAU

The Allegheny Plateau region includes the greater part of the area of the state. It is the region of the oil fields, the soft coal, rich clay deposits, much forested land, and considerable fertile soil. **Sharon**, **New Castle**, and **Butler** are on tributaries of the Beaver River. The chief industry of **Sharon** is iron and steel production. Sharon is also the center of a small area in which oil and gas abound. **New Castle** makes use of the rich clay and stone deposits in its vicinity for tile, chinaware, and glass, and also uses the lumber and foodstuffs from the West for producing many different articles. The natural gas is used for

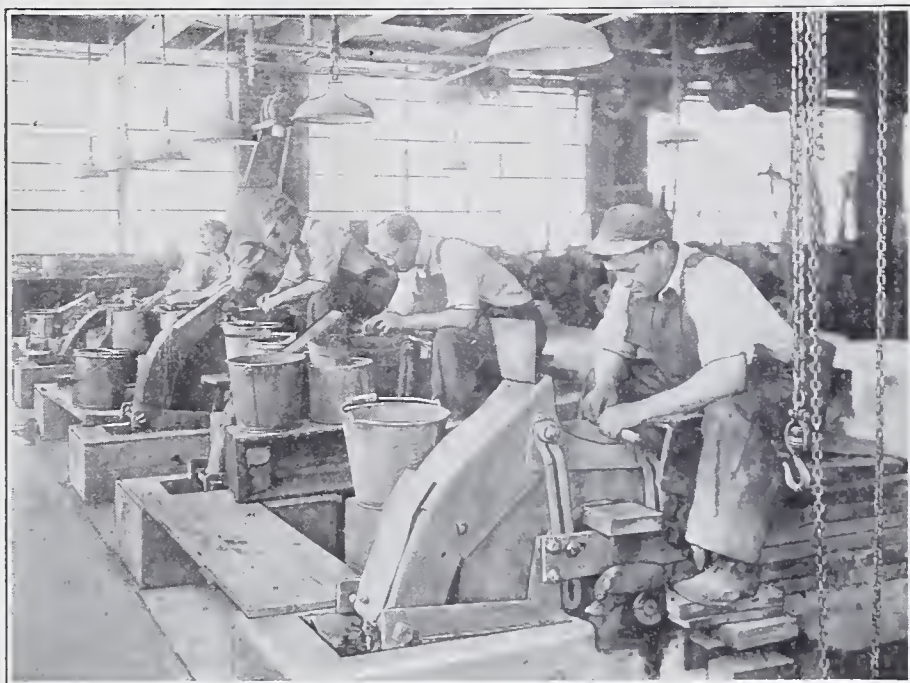


Figure 37. A cutlery plant in Bradford. Notice the large grindstones on which the hand grinding of the cutlery is done. Try to find out what materials are used in the making of these grindstones.

What raw materials are used in the manufacture of cutlery?

power and light. Within a short motoring distance of the city are several popular lake and summer resorts. **Butler**, the county seat of Butler County, in its industries finds a use for almost every form of natural wealth of the state. It not only takes from the earth oil, gas, coal, clay, silica, and stone, but it uses these in many ways, such as making chemical substances, glass of various kinds, and leather goods. It also manufactures various textile articles. **Aliquippa** and **Ambridge** on the Ohio River in Beaver County are manufacturers of steel products.

Oil City, a short distance south of Titusville, where the first oil well in the United States was sunk, is now the center of the state's petroleum region. Here large quantities of the oil from the immediate vicinity, and also from distant oil wells, are refined, that is, converted into gasoline and other commercial products. There are also iron foundries and machine shops, boiler and engine shops, and plants for the manufacture of oil-well supplies. Many miles to the northeast of Oil City, on a

small tributary of the Allegheny, is another oil city called **Bradford**. Its list of manufactured goods is a long one and shows that extensive use is made not only of the gas, oil, clay, and silica in its vicinity but of the coal and iron ore and other materials brought from longer or shorter distances. Cutlery, acids, dyestuffs, window glass, building brick, gas-engine oils, and charcoal are a few of the things made here. See Figure 37.

Johnstown in the southwestern part of the state is located on a small tributary of the Allegheny River. Here is one of the largest steel works in the country, employing over 20,000 men. Coal, iron ore, fire clay, and limestone

are all mined here, and therefore many of the workshops are those which make use of these minerals. **Uniontown** (the county seat of Fayette County) is the commercial center of a region containing rich deposits of coal and iron. It also produces coke, bricks, and glass. In **Washington** (the county seat of Washington County) the American branch of the Sheffield Steel Company of England has a plant, which makes fine cutlery. From the silica, clay, and other minerals in the region are made glassware and chinaware, chemical coloring, tungsten, and other products. Here is located one of the state's important colleges — Washington and Jefferson College. See Figure 38.

7. CITIES OF THE VALLEY LOWLANDS

Within or bordering the regions mentioned above are two very distinct valley lowlands, rich in almost everything that makes for prosperity. The large cities lying in such lowlands naturally fall into two groups, those in the Susquehanna Valley and those in the Ohio Valley. Of those in the Susquehanna Valley



Photograph by Ewing Galloway, N.Y.

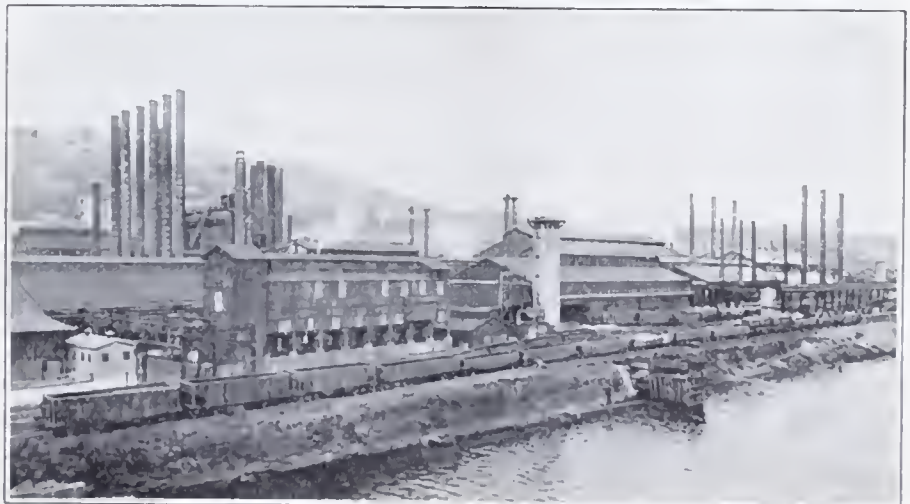
Figure 38. The library at Washington and Jefferson College. This college was organized in 1787. Was this before or after George Washington was made president of the United States?

the four in the anthracite region have already been mentioned, — Pittston, Kingston, Plymouth, and Nanticoke. **Williamsport**, in Lycoming County, is outside the coal district but lies in a region of attractive scenery in one of the chief forested areas; this explains why furniture-making, the preparation of lumber, and tanning are three of the industries of the place. The brickyards and deposits of silica are used in making mirrors, sandpaper, and fire brick. The favorable location and water power have also brought other industries to the place.

The cities in the Ohio Valley lowlands lie close together, for this is the region of the state's richest deposits of soft coal. Here are some of the largest steel works in the world. Of these cities, **Pittsburgh** is at the junction of the Allegheny and Monongahela rivers; **Homestead**, **Duquesne**, **Braddock**, and **McKeesport** border the river close to Pittsburgh, while **Monessen** lies farther to the south. **Pittsburgh** ranks next to

Philadelphia in size and commercial importance. The Pittsburgh district is not only the largest coal-producing district in the world but the largest coal-consuming district. The bringing to the city of vast quantities of iron ore and the carrying away of the tons of steel and iron have made it one of the busiest railroad centers in the country. As we have seen, it is also an important river port. Almost every kind of iron and steel product is made here. There are also plants for making glass and enamel ware and other products. The city has long been famous for its plate glass. The University of Pittsburgh and the Carnegie Museum and Library are known throughout the country. See *Figures 39 and 40*.

Wilkinsburg, adjoining Pittsburgh, has grown as Pittsburgh has grown, for it is chiefly a home place for those whose work is in the larger city. **Homestead** and **Duquesne** are famous for the iron that is made in their foundries and mills. The vast plant at **Homestead** produces both structural steel and nickel-steel armor plate. **Braddock** is the business and financial center for the important manufacturing districts of North Braddock and Rankin, which are adjacent to it. **McKeesport** is often called "the Tube City" because of its largest industry, — the making of pipe and



Photograph by Ewing Galloway, N.Y.

Figure 39. A steel mill in Pittsburgh. This city is the center of the greatest iron-and-steel manufacturing district in the United States. Where is most of the iron ore mined?



Airview by Airmap Corporation of America, N. Y.

Figure 40. An airplane view of the business section of Pittsburgh. This part of the city is called "The Point." Here the Allegheny and Monongahela rivers

join to form the Ohio River. The land on either side of the rivers is a part of the city of Pittsburgh. Notice how many bridges cross both rivers. Why are they needed?

tubing. It also produces a large amount of steel. See Figure 41. Both McKees Rocks (Allegheny County) and Monessen (Westmoreland County) produce not only steel products but bricks and concrete. Monessen, besides its steel plants, has lumber yards, a box factory, and brick works. McKees Rocks has factories for the manufacture of lumber, wall plaster, concrete, and enamel ware in addition to its iron-and-steel plants and railroad shops.

8. THE LAKE PLAIN CITY

Although the 45 miles of frontage on Lake Erie is an important and picturesque part of the state, it happens that there is only one large city within this region, and that is Erie, which is county seat, port of entry, manufac-

turing center, and distributing point. A peninsula which gives the city a natural harbor has been transformed into a wooded park, for Erie is a city which takes pride in its homes and its recreation centers as well as in its docks, factories, and railroads. Its railroad and lake connections are such that both coal and iron ore can be received here at prices which make the manufacture of steel products profitable. Silk and woolen mills are located here, as in all the other centers of manufacturing in the state. The tanneries and flour mills are profitable because Erie is a port of entry for lumber and wheat from the regions farther west. Fish and agricultural products are also received here and then are distributed over a wide area. See Figure 42.

A study test. Tell how one or more of the following has influenced the principal communities in each of the natural regions of Pennsylvania:

coal	harbor
natural gas	iron ore
petroleum	clay
silica	marble
slate	granite
limestone	railroads
graphite	highways
water power	lumber
fertile soil	

Giving endings. Each sentence below needs an ending. See if you can end each one correctly.

1. Philadelphia has become an important seaport because
2. Pittsburgh is the center of the most important iron-and-steel district of the United States because
3. The port of Erie is of great value to the state of Pennsylvania because

Naming cities. Can you name these Pennsylvania cities?

1. The largest city in the state.
2. The state capital.
3. The largest city of the Allegheny Plateau.
4. The center of the anthracite-coal region.
5. An important shipbuilding center.
6. The greatest coal-mining city in the world.
7. The center of cement production.
8. An important steel city in the Appalachian Valley.
9. The largest city of the Lake Plain.
10. The center of Pennsylvania's petroleum region.
11. The seat of Washington and Jefferson College.



Figure 41. The National Tube Company's plant at McKeesport. This city is often called "the Tube City" because of the huge quantities of iron and steel pipes that are manufactured here.

Some things to explain. Explain why

1. Manufacturing is a more important industry in Pennsylvania than farming.
2. Iron-and-steel products rank first among the manufactured products of the state.
3. Glass manufacturing is of great importance in the state.
4. There are large sugar refineries in Philadelphia.
5. Silk manufacturing is carried on in the cities of the coal-mining districts.



Photograph by Ewing Galloway, N.Y.

Figure 42. An airplane view of Erie. What body of water is in the background of the picture? Why is Erie so important to the steel-manufacturing industries of Pennsylvania?

VI. COMMUNITIES, PARTS OF A VAST ORGANIZATION

As we have seen, people live in communities. Even the isolated farmer is part of a community through which he gets the things he needs and through which he markets his products. But communities are something more than places for growing crops or making and selling things. A person's life has many parts; home, school, and recreation are some of these. They all center in and are dependent on work life, but we do not think of them as work. To make all these parts of living possible there must be an organization that attends to such details as building school-houses and roads, regulating railroads, and securing drinking-water for homes, offices, and factories. The organization that does all this and much more we call government. Because the people live in groups, their government consists not only of the one big organization that we call the nation, and a smaller organization known as the state, but of subdivisions of this organization which we call city, town, township, borough, and county governments. Every person in Pennsylvania is a part of the state, of a county, and of a town, township, borough, or city. In most cases there are many towns or boroughs in the same county, but the city of Philadelphia occupies all the county of Philadelphia.

Most of the needs of the people can be attended to by means of the state and its subdivisions. The people in each community elect officials to take care of such matters as schools, streets, drinking-water, and roads. Certain of the affairs of the people can be better attended to by counties. In each county one town or city is set apart as a county seat, where there is a courthouse in which regular sessions are held to decide disputes and to try offenders against the state laws. By far the greatest part of the people's needs, however, must be attended to by the large organization called

the state government. Therefore the people send men called representatives to Harrisburg to make new laws and to repeal and revise old laws. These representatives form the General Assembly, which consists of two parts, a senate and a house of representatives. The legislature meets on the first Tuesday of alternate (odd-numbered) years, but the governor may call an extra session at any time. Besides these representatives the people choose a governor and certain officials to attend to the welfare of the whole state.

The most important work of the governor and all the many state officials, who are either elected by the people or appointed by the governor, is seeing that the laws passed by the different legislatures are carried out. In the long series of years that Pennsylvania has been a state there have been hundreds of laws made, each one intended to help all the people or some group of people. Sometimes a law, or a series of laws, will be so important that it is necessary to have special officials who will give their whole attention to it. Thus we have, for example, a highway department, a health department, and a department of forests and waters, whose duties are concerned with building and repairing roads, preventing the spread of disease, and protecting and planting forests and developing waterways. Certain of the officials of the state, who are elected every four years with the governor, have general duties which concern all the people of the state, whatever their work. These are the lieutenant governor, the secretary of internal affairs, the auditor general, and the state treasurer.

In addition to the men who make the laws and the governor and other officials who carry these out, there have to be still other persons to settle disputes and to punish offenders. Most laws tell how a person who breaks them is to be punished, but an offender cannot be

punished unless there is someone to see that this is done. There have to be officials whose duty it is to arrest offenders, and others to see that the arrested persons have a fair trial. Trials take place in the courts of the state. In Pennsylvania there is a Supreme Court of seven members, elected for twenty-one years; a Superior Court of seven members, elected for ten years; Courts of Common Pleas and other courts, whose judges are elected for ten years.

Among the most important laws passed by the legislators are those concerned with schools. In schools young people learn how to use their brains and hands in ways that will be useful to themselves and the whole state. Every child in the state is required to attend some one of the free public schools unless his parents prefer to send him to a private school. There are elementary and high schools free to all. Then there are special schools and colleges where chemists, teachers, professors, physicians, and farmers are trained. The public schools are under the control of directors or boards of education, of county superintendents, and of a state superintendent, the latter appointed by the governor. Each city, town, or borough appoints local school officials to attend to local matters. Training for teachers is provided in thirteen teachers colleges conducted by the state, in Bloomsburg, California, Clarion, East Stroudsburg, Edinboro, Indiana, Kutztown, Lock Haven, Mansfield, Millersville, Shippensburg, Slippery Rock, and West Chester. There is also a normal school at Cheyney for the training of colored teachers. There are about thirty special colleges and similar institutions in different parts of the state. Some of the more important of these are listed in the next column.



Frank Turgeon, Jr.

Figure 43. An airplane view of State College. This is a state school and is free to residents of Pennsylvania. It was founded especially for training in agriculture and home economics, but it now has all branches of training found in the larger universities.

University of Pennsylvania	Philadelphia
State College	Center County
Gettysburg College	Gettysburg
Washington and Jefferson College	Washington
University of Pittsburgh	Pittsburgh
Carnegie Institute of Technology	Pittsburgh
Bryn Mawr College	Bryn Mawr
Lafayette College	Easton
Bucknell University	Lewisburg
Lehigh University	Bethlehem
Duquesne University	Pittsburgh
Villanova College	Villanova
St. Vincent College	Latrobe
Seton Hall College	Greensburg
Marywood College	Scranton

Special credit work. Make a list of the chief government departments or officials of your community.

Some questions to answer.

1. Who is the governor of your state? How long is his term of office?
2. Who is the lieutenant governor?
3. Who is the state superintendent of public schools?
4. What is the county seat of your home county?
5. What city occupies an entire county?

AREAS, POPULATION, AND COUNTY SEATS OF THE COUNTIES OF PENNSYLVANIA

COUNTY	LAND AREA IN SQUARE MILES	POPULATION 1930	COUNTY SEAT	COUNTY	LAND AREA IN SQUARE MILES	POPULATION 1930	COUNTY SEAT
Adams	528	37,128	Gettysburg	Lackawanna	451	310,397	Scranton
Allegheny	725	1,374,310	Pittsburgh	Lancaster	941	196,882	Lancaster
Armstrong	653	79,298	Kittanning	Lawrence	360	97,258	New Castle
Beaver	429	149,062	Beaver	Lebanon	360	67,103	Lebanon
Bedford	1,026	37,309	Bedford	Lehigh	344	172,893	Allentown
Berks	865	231,717	Reading	Luzerne	892	444,409	Wilkes-Barre
Blair	535	139,840	Hollidaysburg	Lycoming	1,220	93,421	Williamsport
Bradford	1,145	49,039	Towanda	McKean	987	55,167	Smethport
Bucks	608	96,727	Doylstown	Mercer	700	99,246	Mercer
Butler	790	80,480	Butler	Mifflin	398	40,335	Lewistown
Cambria	717	203,146	Ebensburg	Monroe	623	28,286	Stroudsburg
Cameron	392	5,307	Emporium	Montgomery	484	265,804	Norristown
Carbon	406	63,380	Mauch Chunk	Montour	130	14,517	Danville
Center	1,146	46,294	Bellefonte	Northampton	372	169,304	Easton
Chester	777	126,629	West Chester	Northumberland	454	128,504	Sunbury
Clarion	601	34,531	Clarion	Perry	564	21,744	New Bloomfield
Clearfield	1,142	86,727	Clearfield	Philadelphia	128	1,950,961	Philadelphia
Clinton	878	32,319	Lock Haven	Pike	544	7,483	Milford
Columbia	479	48,803	Bloomsburg	Potter	1,071	17,489	Coudersport
Crawford	1,038	62,980	Meadville	Schuylkill	777	235,505	Pottsville
Cumberland	528	68,236	Carlisle	Snyder	311	18,836	Middleburg
Dauphin	522	165,231	Harrisburg	Somerset	1,034	80,764	Somerset
Delaware	185	280,264	Media	Sullivan	458	7,499	Laporte
Elk	806	33,431	Ridgway	Susquehanna	824	33,806	Montrose
Erie	781	175,277	Erie	Tioga	1,142	31,871	Wellsboro
Fayette	796	198,542	Uniontown	Union	305	17,468	Lewisburg
Forest	424	5,180	Tionesta	Venango	661	63,226	Franklin
Franklin	751	65,010	Chambersburg	Warren	902	41,453	Warren
Fulton	403	9,231	McConnellsburg	Washington	862	204,802	Washington
Greene	574	41,767	Waynesburg	Wayne	739	28,420	Honesdale
Huntingdon	918	39,021	Huntingdon	Westmoreland	1,039	295,795	Greensburg
Indiana	829	75,395	Indiana	Wyoming	397	15,517	Tunkhannock
Jefferson	666	52,114	Brookville	York	903	167,135	York
Juniata	392	14,325	Mifflintown				

PLACES IN PENNSYLVANIA HAVING A POPULATION OF 10,000 OR OVER IN 1930

CITY	POPULATION	CITY	POPULATION	CITY	POPULATION
Aliquippa	27,116	Duquesne	21,396	Old Forge	12,661
Allentown	92,563	Easton	34,468	Olyphant	10,743
Altoona	82,054	Ellwood City	12,323	Philadelphia	1,950,961
Ambridge	20,227	Erie	115,967	Phoenixville	12,029
Arnold	11,375	Farrell	14,359	Pittsburgh	669,817
Beaver Falls	17,147	Franklin	10,254	Pittston	18,246
Bellevue	10,252	Greensburg	16,508	Plymouth	16,543
Berwick	12,660	Hanover	11,805	Pottstown	19,430
Bethlehem	57,892	Harrisburg	80,339	Pottsville	24,300
Braddock	19,329	Hazleton	36,765	Reading	111,171
Bradford	19,306	Homestead	20,141	Scranton	143,433
Bristol	11,799	Jeannette	15,126	Shamokin	20,274
Butler	23,568	Johnstown	66,993	Sharon	25,908
Canonsburg	12,558	Kingston	21,600	Shenandoah	21,782
Carbondale	20,061	Lancaster	59,949	Steelton	13,291
Carlisle	12,596	Latrobe	10,644	Sunbury	15,626
Carnegie	12,497	Lebanon	25,561	Swissvale	16,029
Chambersburg	13,788	Lewistown	13,357	Tamaqua	12,936
Charleroi	11,260	McKeesport	54,632	Taylor	10,428
Chester	59,164	McKees Rocks	18,116	Turtle Creek	10,690
Clairton	15,291	Mahanoy City	14,784	Uniontown	19,544
Coatesville	14,582	Meadville	16,698	Vandergrift	11,479
Columbia	11,349	Monessen	20,268	Warren	14,863
Connellsville	13,290	Mount Carmel	17,967	Washington	24,545
Conshohocken	10,815	Munhall	12,995	Waynesboro	10,167
Coraopolis	10,724	Nanticoke	26,043	West Chester	12,325
Dickson City	12,395	New Castle	48,674	Wilkes-Barre	86,626
Donora	13,905	New Kensington	16,762	Wilkinsburg	29,539
Dormont	13,190	Norristown	35,853	Williamsport	45,729
Du Bois	11,595	North Braddock	16,782	York	55,254
Dunmore	22,627	Oil City	22,075		

